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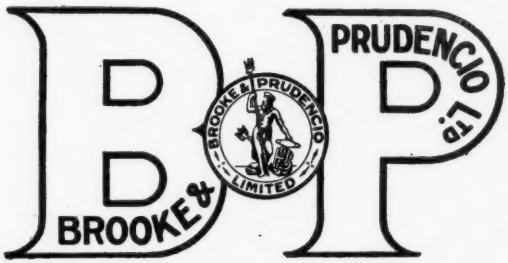

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The Bristol Medico-Chirurgical Journal.

"Scire est nescire, nisi id me
Scire alius sciret."

DECEMBER, 1909.

THE HISTORY AND PRACTICE OF SURGERY IN ANCIENT AND MEDIÆVAL TIMES.

The President's Address, delivered on October 13th, 1909, at the opening of the Thirty-sixth Session of the Bristol Medico-Chirurgical Society.

BY

JAMES SWAIN, M.S., M.D. Lond., F.R.C.S. Eng.,

Professor of Surgery in the University of Bristol; Surgeon to the Bristol Royal Infirmary.

"Is there anything whereof it may be said, 'See, this is new'?"

THE progress of modern surgery owes its recent phenomenal success and expansion to the use of anæsthetics and the prevention of sepsis in wounds.

In 1844 the American dentist Horace Wells demonstrated the practicability of using nitrous oxide gas for surgical anæsthesia; within a few years (1846) ether was used for a similar purpose by Mr. Morton, also an American dentist; and Sir James Young Simpson, of Edinburgh, employed chloroform (1847) as a substitute for ether. In 1867 Lord Lister began to publish papers on the antiseptic principle in the practice of surgery, with which his name will always be illustriously associated.

The brilliant achievement of Horace Wells was, however, made possible by the memorable work of Sir Humphry Davy, who discovered the anæsthetic properties of nitrous oxide gas in 1799, when he was carrying out important experiments in the Pneumatic Institution founded by Dr. Thomas Beddoes in Dowry Square, in this city of Bristol. The great genius which Lister displayed in the application of the "germ theory" to the treatment of wounds was similarly dependent upon the work of his predecessors, more particularly that of Pasteur, who demonstrated in 1857 that fermentation and putrefaction were due to micro-organisms, and that of Runge, who discovered carbolic acid in 1834.

Like Lister and Wells, we are the heirs of the ages, and the foundation of surgery is to be sought for in the distant past. This heritage is often forgotten in the feverish haste of modern times, and the glamour of our science and art of to-day is apt to blind our eyes to the obligation we are under to those who worked with so few of the advantages which we ourselves possess.

The evolution of surgery continues to ebb and flow as it always has done. To-day, as before, we have to change our ideas with the progress of knowledge; and therefore, instead of wearying you with the details of what may be considered the latest and best of surgical knowledge, I propose to put before you a brief history of those principles which have come down to us from remote times, before surgery was finally established on its present basis, and to show you the ancient root and stem from which the branches of to-day have grown. We may thus together help to pay off a debt which is insufficiently acknowledged, and perhaps be led to exclaim, verily "there is no new thing under the sun." In our medical library there are some very old books containing plates which will serve to illustrate my subject.

For the earliest records of surgery we must go to the wonderland of Egypt. *Athotis* (Thosortes), the son of Menes, the first King of Egypt, probably reigned about B.C. 3500 or earlier, and his medical knowledge was sufficiently extensive for him to receive

the surname of "Imhotep," *i.e.* "physician." His temple was at Memphis, and his position among the Egyptians was much the same as that of Æsculapius among the Greeks.

About this time the physicians were guided, under penalty of punishment, by the directions contained in the so-called "Hermetic Books," the originals of which have not been discovered; but some of the contents are probably preserved to us in some ancient papyri, of which one of the best known is the papyrus of Ebers. This interesting manuscript was found between the bones of a mummy at Thebes, and was written about B.C. 1552, when Moses was twenty-one years of age, and therefore before the exodus of the Israelites from Egypt. It is written in hieratic characters—a cursive form of the hieroglyphic method of writing—and was probably compiled at Heliopolis, where there was a school of practical medicine, as there was also at Thebes, Memphis and other places. The work gives directions for the cure of diseases of the eyes, ears and tongue, but treats mainly of medical subjects.

The physicians of the Pharaohs were, however, familiar with such operations as amputations and circumcision; and the great antiquity of the latter is shown by the fact that the operator generally used a flint knife in accordance with ancient custom. As there are no representations of Egyptian circumcision earlier than the time of Rameses II (B.C. 1310–1243), it is probable that the circumcision of Abraham about the year B.C. 1897, as narrated in the Scriptures, is the earliest record of a definite surgical operation.

The ancient Egyptians did little to advance either surgery or anatomy, and, putting aside other early civilisations, we must now turn to ancient Greece, with which the history of surgery in the west is more particularly connected.

The Grecians regarded medical practice as a branch of that philosophy and art for which they are so justly famous. The cult of *Asklepios*—or, to take the more usual Latin equivalent, *Æsculapius*—existed before the destruction of Troy, which occurred about B.C. 1200. It is not unreasonable to infer that Æsculapius and his sons Machaon and Podalirius were real personages

renowned for their medical skill ; and a stone tablet found in the Hieron Valley, near Epidaurus, where Æsculapius is said to have been born, seems to show a group of people asking the advice of Æsculapius and his family.

According to Homer, Æsculapius and his sons were engaged in surgical work, acting like the army surgeons of modern times. Podalirius and Machaon were at the siege of Troy, and were employed in such operations as extracting barbed arrows by incision, and stopping hemorrhage from wounds.

Machaon is credited with curing Philoctetes of a foul ulcer by cutting out the wound, washing it with wine, and applying healing herbs. This use of wine by the ancients was very common. Doubtless the good it effected was due to the antiseptic properties of the alcohol contained in it, and at the present time a solution of alcohol is one of our valued antiseptics.

In Homer no mention is made of any divine origin of Æsculapius—he is simply the " blameless physician " ; but after his death wonderful birth-stories arose, as in the case of Alexander and other great men of ancient times.

These legends ascribe the parentage of Æsculapius to Apollo and Coronis, and he is said to have been born by Cæsarean section just before his mother was burnt in the flames to which the jealous Apollo had committed her.

Many temples were erected in honour of Æsculapius after his deification, those at Epidauros, Cnidos and Cos being amongst the most important. At these temples the officiating priest—who might or might not be a physician—brought the sick person before an image of the god, and the necessary sacrifices were made accompanied by prayers and hymns and other ritual.

Snakes and dogs—both of which were sacred to Æsculapius—are said to have been trained to lick ulcers or other diseased conditions with their tongues. These snakes, which were quite harmless, were peculiar to Epidauros, where they abounded. Sometimes the god was said to appear in the form of a serpent, and the staff of Æsculapius is represented with a snake, and remains as the symbol of the medical profession to this day.

Guilds of lay physicians, known as Asclepiadæ, were formed, and these, rather than the Æsculapian priests, became the direct founders of Grecian medicine.

The Asclepiadæ were great travellers, and by this means gained most of their education from the noted men whom they met, and their medical knowledge was bequeathed from father to son by oral tradition until the time of Hippocrates.

There were, however, schools for medical instruction and practice founded by the Asclepiadæ, and it was at the conclusion of their course of study that the pupils were required to subscribe to the declaration which is commonly known as the Hippocratic oath, but which is of older origin. The two most celebrated of these schools were at Cnidos, in Asia Minor, and Cos, an island in the Ægean Sea.

Pl. 1.
Hippocrates the Great.

In these days the physicians practised both medicine and surgery, though there were irregular practitioners who specialised as lithotomists, oculists or dentists. Medical knowledge was regarded as a secret of the guilds, and many of the guilds were dominated by priestly influence.

Much of this was altered by *Hippocrates the Second*, or "Great," whose surgical knowledge and practice were based on observation and experience. He taught publicly, and founded a system of medicine free from sacerdotalism (Pl. 1).

Born in the island of Cos, in B.C. 460, Hippocrates the Second was the son of the Asclepiad Heraclides, and claimed to be

seventeenth in descent from Æsculapius. He therefore lived in one of the most remarkable periods of intellectual development that the world has known. Pericles the famous Athenian statesman, Socrates the philosopher, Herodotus the historian, and Phidias the greatest sculptor of ancient Greece, with many other distinguished men, were his contemporaries; and doubtless the spirit of philosophic inquiry which was then so general influenced Hippocrates in the formation of his rational ideas on medicine and surgery. Hippocrates practised in Cos, Delos, Athens and other places, and finally retired to Larissa, in Thessaly, where he died about B.C. 370.

He was the first to commit his medical knowledge to writing, and his work has come down to us as a record of the surgery which was then practised with so high a degree of operative skill.

In his treatise on injuries of the head, Hippocrates divides injuries of the cranial bones into (1) simple fractures or fissures, (2) contusions, (3) depressed fractures, (4) fractures of the outer table only, and (5) the counter-fissure, or, as we call it, fracture by "contre-coup."

Trepanning was practised for simple, but not depressed, fractures and for the removal of accumulations of pus and blood; and he warns us against the use of the trephine over the sutures. The modiolus or ancient trephine, the terebra or trepan called abaptiston, the forceps, raspatory, lenticular and mallet were all much the same as those in use at the present day. He knew, too, that injury of one cerebral hemisphere resulted in spasm or paralysis of the muscles on the opposite side of the body. The thorax was opened for empyema and hydrothorax, paracentesis abdominis was practised, and liver abscess and suppuration in the kidney were treated by incision.

The training for the public games which took place in Olympia doubtless made him familiar with fractures and dislocations, and his treatises on these subjects are remarkably complete and accurate.

Dislocations of almost all the articulations are described,

and his account of those of the hip-joint shows a power of observation that most of us would be glad to possess. He minutely records the symptoms of dislocation of the hip-joint, whether congenital, traumatic, or resulting from disease; and not only does he describe the four ordinary dislocations, namely upwards, downwards, forwards and backwards, but he also gives us an excellent account of the appearances of the limb when the dislocation has been left unreduced. He clearly understands the method of reduction by manipulation, for he tells us that in some cases "the reduction is effected by bending the limb at the joint and making rotation." He describes the method of reduction by extension and counter-extension, and in other cases employed levers attached to the scamnum Hippocratis upon which the patient was placed, or used extension over the rung of a ladder.

Pl. 2.
Reduction of dislocation of the shoulder by means of the ambe.

Downward dislocation of the shoulder is the only form with which Hippocrates was familiar, and he tells us that he had "never seen it take place upwards or outwards." We are told how to reduce shoulder dislocations by different methods, such as the use of the ambe (Pl. 2) or the heel in the axilla. "The patient must lie on the ground upon his back, while the person who is to effect the reduction is seated on the ground upon the side of the dislocation; then the operator, seizing with his hand the affected arm, is to pull it, while with his heel in the armpit he pushed in the contrary direction, the right heel being placed in the right armpit, and the left heel in the left armpit."

In the treatment of fractures waxed bandages—the forerunner of our plaster-of-Paris bandages—were used after reduction by extension and counter-extension; but in cases which did not admit of treatment by the various methods of bandaging which he describes, an ingenious splint was used to keep the broken limb extended. This splint consisted of upper and lower rings of leather, through which the affected limb was placed, and the rings were kept apart by rods of cornel or dog-wood of suitable length, so that when adjusted they produced "a proper and equable extension in a straight line, without giving any pain to the wound." In other cases the fractured limb was placed in a canal or gutter of wood. The reduction of compound fractures, the sawing off of protruding ends of bone, the occurrence of exfoliation, and the dangers of these conditions, are fully discussed.

Pl. 3.

Reduction of fracture-dislocation of the spine by means of a lever attached to the scamnum Hippocratis.

His knowledge of club-foot was remarkable; but his words were forgotten, and it is only in recent times that any advance was made on his method of treating this deformity. Hippocrates knew the exact nature of this affection, and tells us that in the treatment of congenital cases we should begin "at as early a period as possible." His plan consisted in restoring the position of the bones as far as possible by the hands, and securing the parts by means of soft bandages and a mixture of wax and resin. He also used a form of leaden shoe, "having the same shape as the Chian slippers had," and speaks of the necessity of wearing some such support after the foot has been restored to its proper shape.

By a rough method of succussion—after fastening the patient to a ladder, which was allowed to fall from a height—the spine

was straightened in cases of fracture-dislocation ; but Hippocrates tells us that he preferred to remedy the deformity by means of a lever (Pl. 3), or by pressure with the hands, in much the same way as Calot suggested for spinal caries a few years ago (Pl. 4).

Venesection and cupping were performed, the rectum was explored by a speculum, and fistula and hæmorrhoids were cured by operation. He gives us minute directions for different forms of bandage, and deals with such subjects as the relative position of the patient and operator, the light, instruments, and so forth.

Pl. 4.

Reduction of fracture-dislocation of the spine by manipulation.

Considering the anatomical knowledge of Hippocrates was practically limited to the bones, and a superficial acquaintance with the viscera, his surgical achievements are all the more wonderful. Thoroughness and boldness were the characteristics of this Father of Surgery, who transmitted to the world an imperishable name and work. He laid the first foundations upon which others built, and we can fully endorse the action of the inhabitants of Argos, who voted him a statue of gold.

After the death of Hippocrates there is little to record of surgical importance in Greece ; but *Praxagoras* of Cos (about B.C. 335), the teacher of Herophilus, and the last of the Asclepiadæ, used taxis for strangulated hernia, and recommended,

if he did not actually perform, abdominal section, removal of the obstruction and suture of the intestine, where purgatives, enemata and massage of the abdomen had failed to relieve obstruction of the bowels.

The cradle of surgery now changes from Greece to Egypt.

Greece itself had come under the dominion of Philip of Macedon, who was succeeded by his son, Alexander the Great; and the latter, having defeated the Persians in Asia Minor, found no difficulty in subjugating Egypt. He founded Alexandria in B.C. 332, and under the Ptolemies this ancient capital soon became the most splendid and wealthy city of the known world. The famous School of Alexandria was established with Aristotle, (Alexander the Great's former teacher) as the Master about B.C. 300. It maintained some of its importance till the time of Hypatia, who was cruelly slaughtered in A.D. 415, and continued to exist until Alexandria fell into the hands of the Arabs in A.D. 640.

Pl. 5.
Scarification of legs for dropsy.

Herophilus (about B.C. 335–280), the founder of human anatomy, was one of the earliest members of the School of Alexandria, and his contemporary, *Erasistratus*, opened the abdomen for the purpose of directly applying remedies to the surface of the liver and spleen, and invented a catheter shaped like the letter "S." But it is probable that some form of catheter was also employed by the immediate followers of Hippocrates.

The development of anatomy had a beneficial effect upon the progress of surgery at the Alexandrian School, but probably

much valuable information on the subject was lost when a large part of the library of 700,000 volumes was destroyed by fire during the siege of Alexandria by Julius Cæsar in B.C. 48.

With the tragic death of Cleopatra in B.C. 30 the dynasty of the Ptolemies came to an end, and Egypt became a Roman province. After this event Alexandria declined in importance, and as Rome became the centre of civilisation, we must now trace the development of surgery in the Roman capital; but we must remember that it is still essentially Greek in substance, even when maturing under Roman influence.

Pl. 6.
Celsus.

For many hundreds of years the practice of medicine was regarded as dishonourable by Romans of the upper class; but the prejudice against practitioners of the healing art was much diminished by the success of *Asclepiades* (B.C. 128–56), a native of Bithynia, who after studying at Alexandria settled in Rome, and became the friend of Cicero and other distinguished men of his time. His name is memorable as that of the first surgeon who practised tracheotomy. He also observed the occurrence of spontaneous dislocations in disease, and recommended scarification of the ankles in dropsy (Pl. 5).

The most famous Roman writer on medical subjects is *Celsus* (Pl. 6), and his treatise is the earliest that has come down to us in the Latin language. He lived (about B.C. 30 to A.D. 50) in the golden age of Augustus and Tiberius, and though some doubt

has arisen as to whether he actually practised medicine or not, his knowledge of the art seems to have justly earned for him the title of the Latin Hippocrates. From him we learn of the advances made in surgery by the Alexandrian School since the time of Hippocrates.

He tells us that "a surgeon ought to be young, or at all events not much advanced in years; possessed of a hand that is firm, steady, uniformly devoid of tremor; he should be able to use both hands with equal dexterity; his sight should be penetrating and clear, with a mind undaunted; he should retain so much compassion as may lead him to wish for his patient's recovery, without being so far moved by his shrieks as to induce him to make unnecessary haste, or to cut less than is absolutely expedient . . ."

He recommends that fistulæ should be laid open and their callous portions excised, and accurately describes the needling of cataracts; he deals with plastic surgery of the ears, lips and nose, and uses sutures to approximate the pared edges of a hare-lip. He warns us against fracture of the alveolar margin in extracting teeth, and wound of the ranine vessels in dividing the frenum linguæ: in the treatment of bronchocele he enucleated cysts after incision.

Wounds of the intestine are dealt with, and though he regarded a wound of the small gut as irremediable, he advocated suture of the colon, "for sometimes reunion is effected." The abdominal parietes were closed by suturing the peritoneum separately from the other layers, and a sponge moistened with vinegar was applied to the incision beneath a bandage. Reducible herniæ were treated with pads and bandages, and open operations were performed for strangulated hernia, hydrocele and varicocele.

After an excellent description of the manner of passing copper catheters, and the removal by incision of an impacted urethral calculus, he gives us his method of cutting for stone in the bladder.

Owing to want of success, the operation of lithotomy was confined in early days to irregular practitioners, who were regarded as disreputable, and surgeons were forbidden to cut

for stone by the Hippocratic oath. Celsus placed the operation on a firm basis, and his method of "cutting on the gripe," as it was also called, was followed for nearly sixteen hundred years. After fixing the stone by passing a finger into the rectum, the neck of the bladder was opened by means of an incision in the perineum. For extraction of the calculus the finger, or an instrument known as the crotchet, was used. He further states that "should the stone appear too large to admit of extraction without rupturing the neck of the bladder, it must be split."

Pl. 7.
Amputation of leg.

The credit of this suggestion he gives to Ammonius of Alexandria, surnamed "Lithotomos," who lived about B.C. 230.

In amputation for gangrene there is also a great advance over the Hippocratic method, which only allowed the dead portions to be cut away after a line of demarcation had formed. Celsus, however, tells us to make a circular cut into the "sound part, rather than to leave any of that which is diseased." The bone should be sawn close up to the healthy flesh, and the stump covered as far as possible with the divided integuments, which should be long enough for this purpose (Pl. 7).

One more example may be given of the advance in surgery in the time of Celsus, who distinctly prefers the use of the ligature to that of the cautery iron in the treatment of hemorrhage. After speaking of the use of cold water, vinegar and other means of arresting hemorrhage, he says: "But should these means fail also, the bleeding vessels should be taken up, and ligatures having been applied above and below the wounded part, the vessels are to be divided in the interspace; that thus they may retract, while their orifices yet remain closed," a practice which in itself would have been sufficient to have immortalised this wonderful surgeon of the early Christian Era.

At the end of the first century *anno Domini*, *Heliodorus* gave us the first account of the terminal ligature and the torsion of arteries. He says: "We ligature the large vessels; but as for the smaller ones, we catch them with hooks, and twist them many times, thus closing their mouths." He also described the isolation and removal of the sac in hernia, and is said to have been the first to perform internal urethrotomy for stricture.

About the same time *Archigenes* (A.D. 48–117) placed amputation of the limbs on a better basis by ligaturing the main vessels as a preliminary measure when it was impracticable to bandage the limb and fasten a tight cord above the area of operation, after the manner of the rubber bandage and tourniquet of Esmarch in modern times.

Claudius Galen (A.D. 131–201) was born at Pergamus, and like many of his predecessors studied at Alexandria before practising in Rome (Pl. 8). His knowledge covered a wide field in science, rhetoric and philosophy, and being an indefatigable worker, he collected all that was known of medicine before his time. His works exceed three hundred in number, and his influence in medicine, like that of Aristotle in philosophy, continued down to the fifteenth century.

He did not, however, add much to surgical knowledge, in which he mainly followed the teaching of Hippocrates. His chief operation seems to have been that of bleeding, but he was adept in bandaging, and introduced those forms known as the accipiter, sling, spica, etc. He appears to have had a fondness

for mechanical appliances, and in the reduction of dislocations and fractures he used the unwieldy machinery of bygone times.

His reputation as an anatomist is of a higher order, though his observations were made on the lower animals, except in the case of the bones, which he studied on human skeletons at Alexandria. He seems to have dissected anything from an elephant to a mouse, but much of his excellent work on the nervous system was based on vivisection, for the ancients objected less to this method of investigation than to interference with the dead, and human anatomy was almost entirely neglected except in Alexandria.

Pl. 8.
Galen.

Antyllus was a distinguished Italian surgeon who flourished about the year A.D. 200. He was the first to give an accurate account of aneurysm, and invented the operation for its cure which goes by his name, and is practised to this day—ligature above and below the aneurysm, with incision of the sac and evacuation of the clot. He also performed subcutaneous section of the ligaments in stiff joints and the extraction of cataracts.

From this time surgery began to decline in Rome, for the luxury, extravagance and vice of the Romans—in spite of the rule of Constantine the Great (A.D. 306–37) who had become a Christian—were incompatible with the encouragement of philosophy, science or art.

The importance of Rome as a centre of learning was still further diminished by Constantine's removal of the seat of empire

to Byzantium, which was dedicated to him under the new name of Constantinople in A.D. 330.

The only writer of any importance in this period was *Oribasius* (A.D. 326–403), of Pergamus, who wrote in Greek, and was the last of the great pagan medical authors. He was physician to Julian the Apostate, and at his request Oribasius made an epitome of the works of Galen. He was an assiduous collector of the medical knowledge of previous ages, and it is to his writings that we are indebted for the account of Antyllus, Heliodorus and others that have been referred to.

With the overthrow of the Western Empire by Odoacer, King of the Heruli, in A.D. 476, we enter upon the mediæval period, and for some hundreds of years the progress of surgery was delayed. It will suffice, therefore, if I only briefly refer to some of the more important advances made by those who helped to illumine these dark ages of surgery.

The spread of Christianity had placed great power in the hands of its converts, but the ceaseless theological discussions accompanying its early growth left little time for the advancement of other knowledge. Medicine passed largely into the hands of the priests, and surgery was neglected.

Educated Greeks of Constantinople, who had studied at Alexandria, fortunately continued to keep alive the knowledge of the ancients by writing compilations of their works, and to these they added any further information which had been acquired up to their own time.

One of the earliest of these eastern physicians was *Aëtius*, of Amida (now Diarbekir) in Mesopotamia (A.D. 502–75), who was evidently a Christian, for if a bone which had stuck in a patient's throat could not be extracted by means of a piece of meat, attached to a string, which the patient had swallowed, he directed the physician to grasp the patient by the throat and cry in a loud voice: "As Jesus Christ drew Lazarus from the grave, and Jonah out of the whale, thus Blasius, the martyr and servant of God, commands 'Bone come up or go down.'"

His voluminous writings, however, contain a good deal of valuable information which is not found in the works of Galen

and Celsus, and he was evidently familiar with the advantages of treating an aneurysm by ligaturing the artery at some distance above it. Thus, when speaking of aneurysm at the bend of the elbow, he tells us to proceed as follows: "In the first place, having marked the course of the artery from the armpit to the forearm, we are to make a simple incision, three or four fingers' breadth below the armpit, where the artery is most superficial; and having laid it bare and separated it from the surrounding parts, to seize the artery with a blunt hook and bind it with two ligatures, after which it is to be divided between them, and the wound filled with fine frankincense, and a suitable pledget of lint bound over it." Like other ancient writers, he regarded carotid, axillary and inguinal aneurysms as incurable.

He distinguished several varieties of hernia, made use of the uterine, sound and sponge tents, and gave clear directions on the surgical treatment of cancer of the breast, using the cautery not only to stop the hemorrhage but also to destroy every particle of diseased tissue.

The greatest of these Byzantine surgeons was *Paul of Ægina* (A.D. 625–90), who was deservedly famous in both surgery and gynæcology. So great was the esteem of the Arabians, that his writings were translated by them, and became one of their chief medical text-books.

His sixth book, which treats of surgery, is considered by many to be the best account of surgical knowledge previous to the revival of learning at the end of the Middle Ages.

Paulus Ægineta, as he is generally called, practised venesection, arteriotomy and cupping, and for the last operation he mentions cupping instruments of glass, copper and horn. In lithotomy he does not confine the operation to children as Celsus did, but allows its propriety at any age. His incision was distinctly lateral, and in this he again differs from the method of Celsus. He says: "Between the anus and the testicles, not however in the middle of the perineum, but on one side, towards the left buttock, we make an oblique incision, cutting down direct upon the stone where it protrudes, so that the

external incision may be wider, but the internal not larger than just to allow the stone to fall through it."

His method of the ligature of varicose veins is the same as the operation of to-day, even to the marking of the veins distended by directing the patient to walk about before operation; and Paulus also mentions that others used to tear the veins out by force, a statement particularly interesting to those of us who live in Bristol and still practise avulsion of varicose veins.

His account of the extraction of weapons is fuller than that of previous writers, and contains much of interest. He tells us that "when the membranes of the brain or cerebrum itself is wounded, we extract the weapon by trepanning the skull. . . . If the weapon is lodged in the chest, and does not come out readily, it is to be extracted by means of a moderate incision in the intercostal space, or by cutting out a rib with the assistance of the instrument called meningo-phylax. In like manner, when the stomach, bladder and other deep parts are wounded, if the weapon comes out readily it is to be extracted without more ado; but if not, we must enlarge the wound. . . . In wounds of the abdomen, gastroraphé as formerly described may be had recourse to if necessary. But if the weapon has lodged in any of the larger vessels, such as the internal jugulars or carotids, and the large arteries in the armpits or groins, and if the extraction threaten a great hemorrhage, they are first to be secured with ligatures on both sides, and then the extraction is to be made."

In badly united fractures he recommended re-fracture even with the use of the chisel, treated hydrocephalus by puncture, and mentioned extirpation of the uterus and the dilatation of strictures of the rectum by means of bougies.

Paulus Ægineta was one of the last Greek medical writers, and the last important student of the famous School of Alexandria.

A new era now begins in the history of surgery, for while the advance of learning was checked in Europe, the newly-arisen Mohammedan powers in Asia became the keepers and transmitters of the scientific knowledge of the Greeks.

Mohammed died in A.D. 632, but the spread of his religious opinions at the point of the sword led to the establishment of an

empire greater than that of Alexander. Jerusalem fell into the hands of the Saracens in A.D. 637, and the famous city of Alexandria shared the same fate in A.D. 640, after a siege of fourteen months, when its celebrated library was again largely destroyed.

Before this period the Arabians had become familiar with the literature of ancient Greece, not only by their commercial relations with Alexandria, but also by the formation of Jewish schools in western Asia—most of which owed their foundation to Alexandrian influence—and the Christian schools in Mesopotamia, as the result of the banishment of the Nestorians in A.D. 439, because the Patriarch of Constantinople, from whom they took their name, had inculcated the doctrine that Mary should be called " Mother of Christ," and not " Mother of God."

Jews and Nestorians translated Greek authors into Syriac, with which many of the Arabians and Persians were familiar.

With the extension of Saracenic influence, after the fall of Alexandria, important manuscripts were carefully collected and translated into Arabic, and schools were founded after the model of that at Alexandria. Bagdad became celebrated as the seat of learning, but schools and hospitals were also established in Persia, Egypt, Spain, and other countries.

The Greek authors previously mentioned were the chief favourites, and so the surgery of the Arabians was essentially that of the Greeks ; but if the Arabians did little to advance our art, we are at least indebted to them for the care which they took in preserving the knowledge of previous ages while the nations of Europe looked on with indifference.

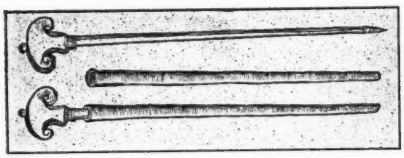
The Arabians faithfully discharged their trust until the destruction of Bagdad by the Mongols in 1258, but their influence continued until the seventeenth century.

Rhazes (A.D. 850–923), one of the earliest of the Arabic writers, was born in Persia, and became a practitioner and teacher at Bagdad. He is the first to describe spina bifida, and advised that catheters should have lateral holes to render them less easily obstructed by clots. He practised puncture of the bladder, and removed the entire tibia and humerus in cases of necrosis.

Haly Abbas (A.D. 930–94), another Persian who lived in Bagdad and wrote in Arabic, recommended the excision of strumous glands and the rupture of ganglionic cysts by striking them with a hard body.

Avicenna, "the Prince of Physicians" (A.D. 980–1037), was held in greater esteem than his predecessors, and his *Canon* was the chief text-book for European medicine for more than five hundred years. He is, however, more famous as a philosopher than a surgeon, but appears to have been the first to use obstetric forceps for the extraction of the child in cases of difficult labour, and thus preceded the "introduction" of midwifery forceps by the Chamberlens by some six hundred years.

The fame of these writers of the eastern caliphate was rivalled by the Spanish-Arabian surgeons in the western caliphate, particularly those of Cordova.



Pl. 9.
Drill for breaking an impacted calculus.

Albucasis (A.D. 1060–1122 ?), whose *Compendium* is largely founded on the work of Paulus Ægineta, gives the earliest drawings of surgical instruments; but, like most of the Arabians, he was an over-cautious operator, and relied greatly upon the actual cautery. He sutured the intestines with threads scraped from the intestinal coats, and used a silver catheter in place of the copper instrument previously in vogue.

Avenzohar (A.D. 1113–62), the teacher of the celebrated Averroës, was born in Seville, and was honoured by the title of "The Wise and the Illustrious." He mentions the use of a silver or tin œsophageal tube for the purpose of artificial feeding, and recommended the use of the trephine in depressed fractures of the skull. He was also the first to attempt to diminish the size of an impacted urethral calculus by means of a sort of drill passed into the urethra, the prototype of the modern lithotrite (Pl. 9).

With the capture of Cordova in 1236 by Ferdinand III of Castile, and that of Bagdad in 1258 by the Mongols, the further development of surgery among the Arabians practically ceased, though the influence of their accumulated knowledge of the subject continued till the seventeenth century.

Meanwhile the progress of surgery in Europe had greatly suffered with the extension of Christianity. In the earlier part of the Middle Ages the practice of surgery was neglected by the priests, who had become the medical practitioners of these times; but a knowledge of the Greek, Roman and Arabic writers was fostered by the teachers and students of the celebrated School of Salerno, which was probably founded in the ninth century, or earlier, and was practically free from clerical influence.

Ultimately the healing art was divorced from the priesthood, and in the thirteenth century most of the famous universities of Europe—such as those at Paris, Montpellier, Padua and Oxford—were founded.

This led to a revival of human anatomy under *Mondino*, of Bologna (1276–1326), and produced a number of men of independent thought, who became acquainted with the surgery of the ancients largely through the writings of the Arabians.

The teaching and works of such men as *William of Salicet* (1201–80), professor at Bologna and Verona; *Arnald of Villeneuve* (1235–1313), *Bruno of Calabria* (about 1252), and *Henry of Mondeville* (died about 1315), a teacher at Montpellier and Paris, did much to restore the science and art of surgery in accordance with principles which had been too long neglected. *John Ardern*, a practitioner of Newark, in Nottinghamshire, and sergeant-surgeon to Edward III in 1346, deserves special mention, as he was the first surgical author of importance in England.

But the greatest of all the surgeons of this Arabic revival was *Guy de Chauliac*, who was born about 1300. His *Chirurgia Magna* passes in review the writings of the Greek and Arabian authors, of which his work is confessedly a compilation (Pl. 10). There is, however, much original matter in his book, which was published in 1363, and which continued to be the chief text-book in France for many years after his death.

He knew the beneficial effect of completely dividing half-severed vessels which continued to bleed, used a sort of cradle for the suspension of fractured limbs, and treated fracture of the thigh by means of a weight and pulley, in addition to the long splint. He had an extensive knowledge of diseases of the eye, and recommended spectacles in cases of weak sight. Spectacles were, however, introduced by Roger Bacon (1214–92), but probably they were invented by the Arabians, with whose science he was familiar.

Pl. 10.

A lecture in anatomy in the fourteenth century.

Guy de Chauliac gave clear indications for trephining, removed pharyngeal polypi, united wounds in order to get primary healing, treated ulcers by compressive bandages, and even recommended that a rope should be placed over the patient's bed to help him in raising himself.

The Arabo-scholastic revival of which I have been speaking was followed by that renewed interest in classical learning in which our medical confrère *Linacre* (1461–1524) played such an important part; and the Middle Ages may be said to close with the invention of printing (Coster, 1440; Caxton, 1476), and

the discovery of America (1497) by John Cabot, who sailed from this port of Bristol.

With the modern era I am not concerned to-night. My endeavour has been to show how extensively the surgery of to-day is dependent upon the labours of ancient and mediæval practitioners of our art. The time at my disposal has prevented me from mentioning many names worthy of our remembrance, and I am very conscious of the scant justice I have done to the work of those to whom reference has been made; but I hope that, at least, enough has been said to save us from egotism, ingratitude and forgetfulness.

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THE MERCURIAL TREATMENT OF TABES DORSALIS.

BY

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THE question of the mercurial treatment of tabes has been very often debated in congresses and also learned societies in France during recent years. Diametrically opposite opinions have been expressed with equal firmness. On the side of the syphilographers, Fournier, Gaucher and Hallopeau trace a very fine dividing-line between syphilitic spinal complications which may be treated

successfully with mercury, and tabes, which may be a derivative of syphilis, but which is not, according to these people, a syphilitic sequel. Thus put, the question cannot be decided by clinical evidence. In fact, if a patient considered as tabetic is successfully treated by mercurials, one may suspect, of course, that the author of the observation made a mistake in diagnosis, and mistook an invalid suffering from cerebro-spinal syphilis for a tabetic.

Other syphiligraphers have given quite different opinions, but they are categorically the same. Leredde (who has been followed by a certain number of his contemporaries) affirmed that the tabetic lesions were just like the syphilitic (the cutaneous syphilides, for instance), susceptible of being treated successfully with mercury for the same reasons, and by the same way. When a tabetic has not improved by mercurial treatment, we must suppose that this treatment was not well applied, and was probably insufficient. Hence an entire change in the mode of the mercurial treatment is adopted, which, instead of being practised by means of injections or frictions with small doses, is carried on by subcutaneous injections of large doses. Was it necessary, then, if they had not until now obtained good results from mercurial treatment in the properly so-called tabes, to admit that it was because this treatment had been insufficient ? Would sufficient treatment really bring new results which would modify the pathogenic conception and the prognosis of tabes ?

It must be understood that a reply to these questions cannot be made " off-hand," and that the only way to solve the problems is to observe a series of tabetics treated by the new process and a series not so treated, these observations lasting several years. This is exactly what Pitres and Ballet counselled at the Toulouse Congress of Medicine, 1902, at the time when the first facts quoted by Leredde, Lemoine, etc., astonished the neurologists.

These observations have been made, and to-day, about six years after the beginning of this debate, we will try and see what the result is.

At first we meet with two precise and curious statements :—

(1) During these last six years all French neurologists have

given their opinions repeatedly. Raymond (whose opinion is very much the same as that of Fournier, Gaucher and Hallopeau) thinks that syphilitic meningo-medullary lesions, capable of being successfully treated with mercurial treatment, are often very much like tabes, at least during their primary stages. This tends to explain, from his point of view, the fact that people are able sometimes, in invalids considered as tabetics, to obtain by mercurial treatment the breaking-up, or even the retrogression, of important symptoms. Pitres, G. Ballet, P. Marie, although not declaring themselves as plainly as the other authors, seem to believe that this treatment is of no use for true tabetic lesions. Jeoffroy and Brissaud expressly deny any sort of improvement brought about by hydrargyrum treatment during the course of tabes. In spite of these divergences of opinion, all (Dupré, etc.) are agreed on the following points: (1) Any intense mercurial treatment, such as that which was extolled by Leredde, may be dangerous to tabetics; (2) it seems to be useless. One French neurologist only, Babinski, is of quite an opposite opinion. Before Leredde had formed his opinion, which was so much talked of, Babinski had practised mercurial treatment of tabetics in a methodical way, and declared that he had obtained good results.

(2) In spite of the almost complete agreement of the principal neurologists against the opinion adopted by Babinski, Leredde and Lemoine, *their opinion has prevailed and gained ground from year to year, so much so, that now you can hardly see a tabetic not adopting mercurial treatment.* At the time when Leredde made his first publication, one could be certain that the tabetics attempting a serious mercurial treatment constituted the smallest exception. The intervention of Leredde and Lemoine, and Babinski's authority, created a prolonged sensation, which gave a new direction to tabetic therapeutics.

Therefore the question is plainly put and resolved in two different ways: on one hand by the authorities in neurology, on the other hand by medical men in general and invalids.

Let us examine the particulars of the problem, and see, if possible, where the disagreement lies.

We have to distinguish at first two different categories of tabetics. In the first one the tabetic, generally observed in the hospitals, is already afflicted with chronic maladies, complicated in different ways. It does not matter whether his former lesions were or were not syphilitic, since there only exist in his marrow extensive and old sclerous scars, upon which one could not demonstrate that mercurial treatment might have a hold, even if these scars were the results of purely syphilitic lesions. Mercurial treatment is unable to make the scar of a cutaneous gumma disappear; but in lesions not cutaneous, it may be well understood that irreparable sclerous scars may be left in the marrow. This scar has cut some cord, interrupted routes of communication, hindered sensations from reaching the centres which have to perceive and arrange them in order; in short, it has badly injured the sensory conducting functions of the region.

On the other hand, disturbances of the bladder, intestines and lungs, the consequences of this spinal lesion, bring about a stasis of the secretions into these organs, and secondary infection. These affections injure the general health, and at last the patient, afflicted with a sclerogenous process in his marrow, is generally attacked by analogous processes in other viscera—liver, kidney, etc. Then the depurative functions easily become incapable of doing their work, and it only needs the usual resort to analgesic poisons (such as morphine, heroin, antipyrin, pyramidon, etc.) to add to this insufficiency of action, so that the whole organism is not long in becoming permanently poisoned. Injured sensori-motor functions, insufficiency of intestinal, pulmonary and urinary elimination, infection of the cavities, fever, medicinal poisoning, such is the balance-sheet of the ordinary tabetic's morbid state. We shall call him the "*matured tabetic.*"

In opposition to this type of classical tabes is the patient who comes, in the majority of cases, to the physician's private consulting-room. Let us examine him. He has no more than Argyll-Robertson's sign, abolition of the patellar reflex, a little uncertainty when walking in the darkness, a few sharp pains, slight hindrance of micturition, sometimes a part only of these

small defects. Very often, at such a time, a diagnosis is not even made ; the medical man hesitates before pronouncing a judgment he thinks to be inexorable. No doubt amongst the subjects afflicted with diplopia observed and attended by Fournier (the majority of whom did not become confirmed tabetics) a large number were in this category. What lesions do exist among those patients ? It is well known how few are the autopsies of " tabes incipiens," and how much the early details of tabetic lesions is still discussed. Numerous hypotheses are presented, but they are only hypotheses precisely for want of autopsies of tabes incipiens. We may be allowed, then, to suppose that now there is neither sclerosis nor incurable scar ; there may be, perhaps, the meningo-radicular processes pointed out by Nageotte, and described also by Sicard, perhaps an embryonal pre-sclerous infiltration of the posterior radicular co-ordinating fibres (*i.e.* lesions which can be cured quite easily), such being, probably, all that would be met with. But one has no fear in saying and repeating that often five, ten, fifteen, twenty years elapse before a patient showing these small symptoms finds the pronounced evidences of advancing tabes. Some invalids remain in this premonitory state during their whole lives ; or, according to an expression of Fournier, in this " ante-chamber of tabes."

To apply an intense mercurial treatment to the first or the second of these maladies, to the matured or to the " recent tabetic," is evidently quite a different matter. But during recent years the experiments made by neurologists have been carried on principally amongst tabetics of the first category. Therefore the results of mercurial treatment in these cases have been of little worth, and even sometimes bad. This was because the lesions were irreparable, because many symptoms depended on superadded lesions or complications upon which mercurial treatment had no effect, because among some of those patients already affected or in a state of permanent auto-intoxication the mercury was but one poison more added to many others.

On the other hand, the protagonists of mercurial treatment have not said that it must be the *only* treatment of tabes, and that it was by itself *alone* the only therapeutic treatment.

Between two tabetics—the one who is going on with his usual life, overworked with moral and material difficulties, sleeplessness, faults of alimentation and hygiene, frequent medicinal intoxication (morphine, antipyrin, pyramidon, heroin, etc.), were resulting from the overworking of an organism whose equilibrium is worn out; the other of the same age and condition, showing the same lesions, who as soon as the diagnosis is settled abandons any work, modifies his hygiene from top to bottom, sleeps, eats, does not take any exercise or rest but those prescribed—I say that between these two patients no therapeutic comparison is possible, were they both submitted to identical mercurial treatment. Even for the most notoriously syphilitic tabetic syphilis is far from being the one origin of all the symptoms of tabes. Some appear under the influence of an intercurrent disease (influenza, for instance), others from overwork, others are brought on by alcohol, overfeeding, etc.; in short, the simplest kind of tabes is still more complex than a cutaneous syphilide, and one is not able to satisfy oneself as to its treatment by the same reasoning.

Thus the disagreement between both the opinions quoted above occurs from the following considerations: (1) Leredde's affirmations were too categoric and simple, the subject being much more complex than he said; (2) patients described by believers in the mercurial treatment of tabes and those described by neurologists are not the same in the majority of cases.

How are we to understand nowadays the prognosis and treatment of tabes, and especially the mercurial treatment? Firstly, the diagnosis of tabes must be made precisely, and as near as possible at the beginning of the affection; no more spurious rheumatism, under which the physician too often has attempted to conceal from the patient the real meaning of the lightning pains, in order to spare him or his family the anguish which accompanies an outspoken and unexpected diagnosis of tabes; there should be no more hesitation for a period, during which the physician avoids accepting a responsibility which frightens him. For the tabetic, as for the tuberculous, one should make the diagnosis very early, and not hesitate, if necessary, to shock the family

and the patient. One must admit that there is tabes as soon as the Argyll-Robertson and Romberg's signs appear, as soon as the first sharp-shooting pains, as soon as the first vesical disturbances, are noticed, just as you would affirm there is tuberculosis as soon as there is increase of resistance to percussion, the early differences of auscultation pointed out by Grancher, the commencement of hæmoptysis, however slight. To wait for the important signs of tabes in order to strengthen one's diagnosis, would be like waiting in a case of tuberculosis for the appearance of a subclavicular cavity. In both cases, as soon as the diagnosis is made, you must warn the invalid of the danger which threatens him, specifying plainly that the symptoms are but a warning, and that he can avoid after-effects if he is careful ; because, considered in this way, *tabes is curable.*

Tabes is curable, at least clinically, because there exist tabetics who have recovered ; but it is necessary to understand each other over the meaning of the word " recovered." These invalids may retain a few slight symptoms, they may keep some marks in their nervous centres, they may even have a relapse ; but in dealing with the old and classical comprehension of the word tabes (" *progressive locomotor ataxy* "), these points do not prevent that the invalid who for thirty years has had but a few attacks of sharp-shooting pains, abolition of patellar reflex and Argyll-Robertson's sign, may be practically considered as cured. Does not a tuberculous patient, when cured, retain some pulmonary traces of his lesion, some respiratory or circulatory symptom resulting from it ?

But if cases of curable tabes exist, if an early diagnosis and well-managed treatment check the progress formerly considered inexorable, and even give retrogressions, what is the part played by mercurial treatment ?

Cases of benign tabes become more and more frequent ; arrest of tabes is the rule, progress the exception ; amongst established symptoms some retrogress. At the moment of the set-back to progress, symptoms in a fair way to becoming established may be stopped. At last tabes, being checked, may remain so indefinitely, and the relapses, the halts, which were

formerly the rule, may be prevented or may he accounted for by complications due to drugs.

Mercurial treatment better followed, longer and more generalised, is one of the causes, and probably the initial cause, of the transformation of the prognosis of tabes. *It is generally amongst patients who have followed, or will follow, a methodical and prolonged mercurial treatment that the evolution of the disease remains benign*, provided that they do not ignore other therapeutical rules, and that diagnosis is, and has been, made early, and treatment commenced in good time. It is amongst patients badly treated, or not cared for at all (who were formerly the rule), that the evolution of the disease remains progressive; but evidently this rule admits of exceptions and corrections in one or the other of both its parts, as dogmatic affirmations in medicine always do.

We now approach the question, How is the mercurial treatment to be performed?

We answer, as much as possible by injections of soluble salts, which permit a stricter surveillance of individual toleration. Calomel and grey oil ought to be reserved for strong and robust patients, and constitute for these cases the best procedure. For other patients the use of these two substances may be attended with fatigue, and sometimes with an increase of certain tabetic symptoms; hence a difficulty arises in making the medication acceptable, and hence the complaints which are heard against it. Two or three centigrams of mercury benzoate or biniodide daily is a sufficient dose in the majority of cases. One should discontinue the injections in every case where the patient feels indisposed; but if the salt is soluble, uneasiness will disappear with the elimination of the drug in one or two days.[1] In short,

[1] 1 to 1½ centigram of mercury (metal) daily constitutes a normal dose and a good standard of reference. One centigram of mercury (metal) corresponds to—

Calomel	1.177 cg.
Mercury bichloride	1.335 ,,
Mercury benzoate	2.200 ,,
Mercury biniodide	2.270 ,,
Hermophenyl	2.500 ,,

For the grey oil formulas are variable, Easily-managed grey oils exist, containing 10 centigrams of mercury (metal) to each cubic centimeter.

a repeated examination of the general and local state will give indications and permit one to graduate the mercurial treatment in every case, in order to make it as strong as possible, and, at the same time, without intoxicating the patient. Amongst invalids whose general state requires exceptional care the hydrargyrum cure may be made with smaller doses, and associated with or followed by an arsenical cure. Products of the hermophenyl series, such as hydrargol, levurargyrum, enesol, are generally well received. But some competent chemists regard their mercurial effects as uncertain. Yet I think I have obtained good results from them, and I think that one ought to give them to patients who cannot take the ordinary salts.

To sum up, one should prescribe calomel and grey oil when one may or ought to do it; mercury benzoate and biniodide usually; hermophenyl, etc, when the patient's sensitiveness demands benign therapeutics. Such is what seems to me should be the general routine. Large doses—more than one centigram of mercury (metal) by day—can be taken by many invalids, provided that its use is not extended for too long a time. When giving them, however, you will recollect that if you surpass the patient's toleration even slightly, and if you provoke in a nervous invalid toxic troubles or even mental ones, you put his organism out of order, and you aggravate his nervous symptoms, which aggravation may be sometimes lasting. In so doing you run counter to the object you have in view, turning the patient against the mercurial treatment, and putting obstacles in the way of its success. A series of from fifteen to thirty centigrams of mercury (metal), renewed about four times yearly, may be given in order to complete an average of one gram in the year. Theoretically, one centigram of mercury (metal) daily may serve as a standard, for the whole of a series, for ordinary patients. It will be recollected that the intensity of the treatment does not result either from the quantity of a daily dose, or from the nature of the salt employed, but from the whole dose of the series. Consequently, the series will become shorter as the daily dose becomes bigger.

In concluding, I wish to repeat that mercury is one of the elements of the tabetic's treatment, but not all. In consequence, the tabetic must continue to carry out all the other details of hygiene, general supervision, and physical therapeutics for which experience has shown the necessity. Success can only be secured by this means.

"VIS MEDICATRIX NATURÆ."

Inaugural Address at the Annual Meeting of the Bath and Bristol Branch of the British Medical Association, May 26th, 1909.

BY

G. MUNRO SMITH, *President.*

I HAVE chosen for my theme "the healing powers of Nature," the *vis medicatrix naturæ*. This phrase was first used, as far as I can discover, by Cullen, who thought that some secret force, which was antagonistic to disease, resided in the animal body. He looked upon most of the symptoms of an illness as the result of a reaction against the causes of disease. Fever, for example, he considered a reparative process, and gout, according to him, was an atony of the digestive organs, against which a reparative effort in the form of a joint inflammation was periodically set up.[1]

This theory of Cullen's, in spite of its obvious errors, has an element of truth in it curiously in accord with some of the explanations of modern physiology and pathology.

In a brilliant and suggestive address given before the British Medical Association at Cambridge, in August, 1880,[2] Sir James Paget urged the importance of a catholic spirit in the study of pathology, and especially laid stress on the lessons to be learnt from the diseases of plants, and Nature's attempts to heal them. He mentioned the fact, for instance (which we have most of us

[1] Park's *History of Medicine*, 1899, p. 198.
[2] *Brit. M. J.*, 1880, ii, 611, 649.

noticed), that if the branch of a tree is broken off (or nearly off) in the summer, the leaves remain on this branch through the autumn and winter, whilst the rest of the tree becomes denuded of leaves. The branch has lost its vitality, and has not the power to cast off or *slough* off its leaves. Here we have a good example of one of Nature's means of healing wounds and getting rid of dead tissue, that is sloughing, with the formation of granulations.

He further calls attention to the overgrowths or hypertrophies produced by the pricks of insects, etc. (*e.g.* gall-nuts), as a method of protection ; the healing of the trunk after the amputation of boughs by the skinning over of the under and upper layers of the bark, etc. Both animal and plant life are, indeed, full of instances of this *vis medicatrix naturæ*. The subject is important to all of us, for there can be no doubt we cannot do battle with disease or accident successfully unless we study the processes by which Nature cures. Moreover, these phenomena are so marvellous, that a man must be very dull, or very " superior " indeed in his own estimation, if he sees nothing in them worthy of his admiration. " Surely," says Sir James Paget, " in our familiarity with the processes of repair we overlook their wonder ; the wonder that there should be in anything an inherent power of repairing the consequences of accident."

I am fully aware of the difficulties of my task. The more one thinks of these mysterious attempts at protection, immunity, healing and reparation which go on in the body the more complicated the subject grows. I hope, however, to avoid controversial questions, and confine myself (1) to the attitude taken by medical men towards Nature's healing powers, (2) to some instances in which these powers are well shown, and (3) to a few thoughts thereon which seem to suggest themselves.

I said that there were difficulties in the way. These are chiefly connected with the abstruse nature of the processes involved, for it is evident that a consideration of the *vis medicatrix naturæ* touches on many philosophical problems, and it would be easy, unless one carefully picked one's way, to fall into the quagmires of theological discussion, where one might flounder helplessly. I shall not waste your time by defining

what I mean by the word "nature." Everyone has, I trust, read *Nicholas Nickleby*, and remembers Mr. Squeers. "'She 's a rum' un, is Natur'," said Mr. Squeers. "She is a holy thing, sir," remarked Snawley. "I believe you," added Mr. Squeers with a moral sigh, "I should like to know how we should ever get on without her. Natur'," said Mr. Squeers solemnly, "is more easier conceived than described. Oh! what a blessed thing, sir, to be in a state of Natur'!" [1]

Let us, for once, agree with Mr. Squeers that Nature is a "rum' un," and that she is "more easier conceived than described," without further definition.

It is certain, at all events, that in animals and plants there take place, constantly, certain processes which are antagonistic to disease, which tend to repair losses of tissue, and heal, or attempt to heal, injuries.

Every medical man must work in alliance with these processes or must thwart them. He may fight disease in the old-fashioned way, "armed with a mortar and a pestle," or equipped with a top hat and a look of unnatural wisdom, or with every available help from modern science; but in any case his success will depend on his attitude to the *vis medicatrix naturæ*. The neglect of Nature's methods, or the active opposition to them, has brought doctors in all ages under the lash of ridicule. There has always prevailed some idea that the medical man, instead of helping Nature on the lines she indicates, has opposed her by his drugs, his operative interference, and so forth. The unfortunate patient often feels this, and even argues about it. When Rabelais was in his last illness, and a consultation was held at his bedside, "Pray," said he, "pray, let me die a natural death!" And those who have read Moore's *Life of Byron* will remember the painful scene at Missolonghi, where Byron, weakened by insufficient food, and in a state of nervous irritability, pleads with his medical men that he should not be bled, quoting Dr. Reid's statement that less slaughter was caused by the lance than the lancet. But there were two to one—two doctors to one patient—and he was at length, weary with the discussion, forced to consent,

[1] *Nicholas Nickleby*, chap. **xlv.**

and was bled, first to twenty ounces; and this was repeated next day, not because he was better, but because he was worse; and not content with this heroic treatment, the poor poet was blistered on both legs.[1]

We do not bleed much now, or even blister, but drugs are almost as much to the fore as ever they were; and, indeed, most patients insist on having something to take three times a day after meals; they have become so accustomed to this, that if it is not ordered they think they are sadly neglected. Yet this kind of treatment, although often necessary as a piece of diplomacy, is in many cases not done with any definite plan of bringing about a cure by any physiological process.

Montaigne[2] declared that he never took medicine. He remarks, "And answer such as urge me to take Physicke that at least they will tarie till such times as I have recovered my health and strength againe; that then I may the better be enabled to endure the violence and hazard of their potions. I let Nature worke, and presuppose unto my selfe that she hath provided her selfe both of teeth and clawes to defend her selfe from such assaults as shall beset her." These teeth and claws constitute the weapons of the *vis medicatrix naturæ*.

Montaigne says in another place,[3] still speaking of doctors: "I never meddled with the bitterness of their prescriptions. I send for them if I am sicke, if they may conveniently be found; and love to be entertained of them, rewarding them as other men doe." You will be pleased to hear, however, that he owns to "having knowne diverse honest men among them: it is not them I blame, but their arte."

Others were not so lenient as Montaigne. It was not very uncommon for an unsuccessful physician to be put to death; and at one time it was gravely debated whether, if a physician were called to a case and found it hopeless, he should not either run away, to escape possible slaughter, or call in a chirurgeon, on whom he could fix the blame in case the patient died—a plan still

[1] Moore's *Life of Byron*, p. 635.

[2] Montaigne's *Essays*, book i, chap. xxii (translated by John Florio).

[3] *Ibid.*, book ii, chap. xxxvii.

sometimes adopted with success. In Withington's *History of Medicine* it is stated that Austragild, wife of Guntram, King of the Burgundians, before her death, begged her husband to execute her two physicians on her tomb. The King did so; but Bishop Gregory's comment on the proceeding is "that many considered that the deed was not without sin."

In the same entertaining book[1] is an abstract from a mediæval work entitled *De adventu Medici*, which although not very cognate to my subject, yet is so interesting as showing how like medical men are in all ages that I quote it:—

"When called to a patient commend yourself to God and to the angel who guided Tobias. On the way learn as much as possible from the messenger, so that if you discover nothing from the patient's pulse or water, you may still astonish him and gain his confidence by your knowledge of the case. On arrival ask the friends whether the patient has confessed, for if you bid him do so after the examination it will frighten him. Then sit down, take a drink, and praise the beauty of the country and the house, if they deserve it, or extol the liberality of the family. Next proceed to feel his pulse, remembering that it may be affected by your arrival, or the patient being a miser, by his thinking of the fee. . . . Tell the patient that you will cure him, with God's help, but inform the friends that the case is a most serious one," etc.

These excellent rules might serve, with very little alteration, for the conduct of a case to-day. As stated, the idea that doctors not unfrequently shortened patient's lives by their treatment, and that if left to Nature the cases would do well enough, has always been common. In an ancient book called *Wilson's Arte of Rhetorique*, published in 1560, there is the following: "When an unlearned Phisitian (as England lacketh none such) had come to Pausanias, a noble Gentleman, and asked him if he were not troubled much with sicknesse, 'No, Sir' (quoth he), 'I am not troubled at all, I thanke God, because I use not thy counsaile.' 'Why do ye accuse me' (quoth the Phisitian) 'that never tried me?' 'Marie' (quoth Pausanias), 'if I had once tried thee,

[1] Withington's *History of Medicine*, 1894.

I should never have accused thee, for then had I been dead and in my grave many daies agone.' "

I hope these quotations will not lead anyone to think that I underrate the proper use of drugs or other remedies and advocate a system of *laissez-faire*.

In fact, I agree to a great extent with some remarks made by my father in 1847, in reference to a controversy on this subject in the *British and Foreign Medical Review*.[1]

He says: "The author is deeply convinced that investigation will only lead to a more reverential and implicit trustfulness, and to a more complete recognition of the value of the science and practice of medicine, as it has descended to us, enriched by the researches of ages. Fully is he convinced that, making the proper allowance for an alloy of human error, it is a vast and magnificent commentary on the book of Nature."

The discussion that my father refers to is so important in relation to my subject, that I will say a few words about it.

In the *British and Foreign Medical Review* for January, 1846, appeared an excellent criticism by the then editor, Dr. Forbes, on several books on Homœopathy. This review is characterised by a remarkable fairness and judicial tone.

He does not condemn Hahnemann off-hand, as is so often done, as a mere ignoramus. He gives him credit for his erudition and investigations, although he is quite alive to the *a priori* absurdity of some of his ideas. To take one instance of many. Hahnemann, as everybody knows, came to the conclusion that extremely dilute solutions of a drug have a powerful effect if the dilution is made under certain conditions. He says, for example, that the decillionth of a grain of oyster-shell will take forty days to produce its full effects on the patient. Now a decillion is the tenth power of a million, and is written by 1 followed by 60 ciphers. Such a dilution would be something like dissolving a teaspoonful of salt in Lake Windermere. But Dr. Forbes is impressed with the fact that according to fairly reliable statistics patients at that time recovered from typhoid,

[1] "A Few Remarks on the Expectant Treatment of Disease." By ΑΚΕΣΥΗΣ. John Churchill. 1847.

small-pox or measles as well under this treatment as under the orthodox bleeding, purging, antimony, etc., and he asks: Do patients get well because of the treatment or in spite of the treatment?

He emphasises this by an incident which happened in his own practice. A little girl had been under his care, and he asked her on his visit how she was. "Oh," said she, "I 'm very much better, sir." "And how long have you been so much better?" "Since Friday, sir." "Ha! What happened on Friday?" "Please, sir, my medicine was done!"

He sums up by drawing certain inferences, viz.:—

(1) A large proportion of patients are cured by Nature, not by the physician.

(2) In a lesser, but still not a small, proportion the disease is cured by Nature in spite of the physician.

(3) That consequently in a considerable proportion of diseases it would be as well or better with patients if drugs were abandoned.

The general trend of this paper was backed up by Dr. Andrew Combe (in April, 1846), who said: "Co-operate with Nature instead of taking her by storm." In fact, he lays stress on the *vis medicatrix naturæ*, and advocates the general care of cases by nursing and so forth instead of drugging. He was before his time, and the orthodox fell upon him in the shape of Dr. Addington Symonds, who claimed (October, 1846) that as man has succeeded in mastering so many powers of Nature, he might, by analogy, be supposed to acquire some dominion over the *vis vitiatrix* and the *vis necatrix*, which have to be dealt with as well as the *vis medicatrix*. He says: "Though she (Nature) knits up wounds with her adhesive inflammation, by the very same method she glues the intestines into fatal entanglements, shackles the heart and closes up the windpipe."[1]

Let us for a moment consider these arguments of Dr. Symonds in the light of present knowledge.

As regards the *vis vitiatrix*, it would be difficult to prove

[1] *British and Foreign Medical Review*, p. 559. October, 1846.

that there was such a force. In the progress of evolution it is essential that some such force as the *vis medicatrix* should come into existence for the sake of the organism. But there is no reason for the existence of any thing (call it force or principle or what you will) which would tend to the detriment of the organism.

The *vis necatrix* or tendency to death, became necessary to ensure variation and development, it is true, but Dr. Symonds certainly was not thinking of this in 1846. As to his argument that the same process which heals a wound also causes fatal peritonitis, the adhesive inflammation of peritonitis is set up probably as a protective process, to keep the inflamed intestines from movement; and even if this is not allowed as an argument, yet it is obvious that the leucocytosis which accompanies the plastic inflammation is entirely in the direction of healing. Moreover, when you begin to speak of diseases due to germs and parasites, one must remember that Nature looks after the humblest of her products, and provides means for its protection and propagation, just as she provides for her crowning work—man. A good instance of this may be given from the natural history of the filaria sanguinis hominis. Sir Patrick Manson has shown that this parasite is found in the blood under the skin, that is, in the superficial circulation, only, or chiefly at night. Why is this? Probably because it is important for the filaria to be carried from host to host, from one pasture to another, and it is carried from the patient's blood by the nightly visits of mosquitoes. This determination of the parasite to the superficial blood-vessels at night is probably, says Sir Patrick, an "adaptation of the habits of the filaria to the nocturnal habits of the mosquitoes."

The above discussion seems to me all in favour of giving Nature a tolerably free hand, and it is interesting to note that according to recent statistics one of the diseases mentioned, namely typhoid fever, when treated by what may be called the expectant method, shows 80 to 90 per cent. recoveries.[1]

I will now briefly mention one or two of Nature's methods

[1] "Principles of Vaccine Therapy," *Lancet*, 1907, ii, 423.

of cure. One of the most interesting is the formation round the offending body (whether it be necrosed tissue, germs, tumours or extraneous substances) of a case or capsule, so that the cause of irritation is covered up and kept from injuring the surrounding tissues, or cut off from its hlood supply and starved, so that it subsequently undergoes degeneration and perhaps absorption.

The encasement of dead bone, the isolation and consequent caseation and calcification of tubercular deposits, the formation of tissue round foreign bodies, etc., will occur as examples of this.

A good instance of this is seen in the fibrous deposit sometimes formed round cancerous emboli.[1]

It is by a somewhat similar process that Nature treats cancer. The amount of actual carcinomatous material in a slowly-forming scirrhus of the breast is very small compared with the fibrous tissue round it and in its interstices, which does not belong intrinsically to the disease, but is doing what it can to isolate and check it. That attempts are constantly made in the body, however unsuccessful they may be, to cure cancer has been recognised by various observers. For example, Mr. Pearce Gould has recorded a case of natural recovery from extensive recurrent carcinoma, in the first place mammary,[2] and Sir Watson Cheyne another spontaneous disappearance of recurrent carcinoma.[3]

Mr. W. Sampson Handley (lecture delivered before the College of Surgeons of England on "The Natural Cure of Cancer"[4]) has pointed out how every mass of cancer cells tends to undergo degenerate changes, beginning in the centre and extending to the periphery. This is a very old observation, and is seen in the umbilication or pitting of cancerous nodules in the liver and elsewhere, the centre of the mass becoming necrosed and shrinking. This occurs partly because the central cells do not get so much nourishment as the peripheral cells, but also because every cancer cell has a certain duration of life, and the first formed

[1] *See* Schmidt's picture in *Essays on the Position of Abdominal Hysterectomy in London.* By J. Bland-Sutton. 1909.

[2] *Tr. Clin. Soc. Lond.*, 1897, xxx, 205.

[3] Royal Society of Medicine, May 8th, 1908. [4] *Brit. M. J.*, 1909, i, 582.

naturally die first. But another process is at work, namely the formation of fibrous tissue; and according to Mr. Sampson Handley's "permeation" theory, as the malignant disease extends in a radiating manner from its original birthplace it is followed up by fibrotic changes, which block the lymphatics and obliterate them. At the growing edge of cancer connective tissue cells are formed, and appear to nourish the growth; but when the fibrous tissue is fully formed it acts as an effectual barrier to its onward progress.

If this fibrous tissue could only be formed quickly enough—if it could precede instead of follow the growth—spontaneous cure would be much more frequent. If the enemy, to use a metaphor, could be not only pursued but headed off, it might be entrapped, encapsuled and killed. Here Nature is in conflict with disease, but she is too slow. Time is of no account with her. The cancer will be killed in time, but the patient is killed whilst the cure is in progress. The process which in this case she does not carry out quickly or thoroughly enough is carried out in other instances too thoroughly, and we get fibrous nodules or tumours round some diseased part or foreign body, just as we get the curative process of sloughing, with granulation tissue and formation of pus carried too far and the patient killed by exhaustion. This leads to the mention of two laws in connection with the *vis medicatrix naturæ*. One is that the reaction against disease is apt to be in excess of the needs; the other is that Nature regards the part more than the individual.

There are other means used in the attempt to cure cancer: there is the natural antagonism of the blood, so that epithelial cells cannot well live in the blood stream; and it is possible that the ferments which exist in all living cells may exert an influence to bring about amelioration. It can be shown that if any organ be kept at the right temperature after it is dead it becomes soft, and digests itself. This autolysis by the intra-cellular ferments is one of Nature's most potent means, probably, for dissolving useless or harmful products, such as infarcts, syphilitic growths, and occasionally malignant tumours. The rapid liquefaction of

grey hepatization in pneumonia is probably due to the same means.[1]

Nature can not only destroy diseased parts, but can to a great extent re-form and renew lost tissue.

In April, 1908, I saw a small boy, aged ten, who had suffered from a whitlow on the thumb. The nail was loosened from its bed, and a discharging sinus led down to necrosed bone. I operated on him on April 3rd, 1908, and found the terminal phalanx quite loose and completely necrosed. I took it away, removed the nail, and cut away the diseased skin; in fact, I did what I should describe as amputation at the joint, and I told the parents that he would not have any end joint to his thumb. In January of this year (1909) I saw the boy again. To my great astonishment he had a well-shaped nail on his thumb, and quite a respectable terminal phalanx, with a perfect phalangeal joint. I had a skiagram taken, which I will show you. I have never seen a better example of the *vis medicatrix naturæ*. What happened, no doubt, was that the epiphysis was left, and from this Nature is fashioning a most presentable phalanx.

How far lost parts can be reproduced in man is a problem. It is possible that in early stages of intra-uterine development this may occur; but there is no evidence of a new limb growing that is at all trustworthy. But in the lower animals such phenomena are common. Many of us have seen a lizard cast its tail, and the lost member is quickly reproduced, sometimes growing double. A garden worm cut into two becomes two worms, one part growing a head, the other a tail. Here we have an instance of the rule that Nature considers the lesion but not always the individual, for the tail end sometimes grows a tail instead of a head, leading, of course, to the death of the animal from inanition, rectal feeding being unknown amongst worms.

Star-fish will grow fresh rays to replace amputated ones; crabs cast their claws, and speedily grow fresh ones; the salamander will grow new legs; and the snail will grow such a complicated organ as the eye, if it is cut off, not once but many

[1] Dr. Flexner, *Univ. Penna. M. Bull.*, 1903–04, xvi, 185.

times. The rule seems to be that if a limb or any other part of an animal necessary to its existence is subject to frequent accidental mutilation, Nature in progress of time endows the species with the power of renewing the lost part. The age of the animal makes a great difference ; the younger it is, the greater is the recuperative force.

Sir James Paget has formulated a law on this subject, viz. " that the reparative power bears an inverse proportion to the amount of power consumed in the development and growth of the individual, and in its maintenance in the perfect state."[1]

According to this, we should, of course, expect man to have a less perfect faculty for regeneration of parts than most other animals.

Perhaps, however, the most wonderful instances of the power in our tissues which is constantly fighting against disease and death is to be found in the phenomena of immunity. John Hunter showed by experiment that fresh blood destroyed putrefaction to some extent ; in fact, he and his friend Edward Jenner may be considered the pioneers in this subject. Sir James Paget, in his lecture on dissection wounds, says the " fact of an acquired immunity seems certain." But it was not until bacteriology became a science, and Metchnikoff and Nuttall investigated the action of the leucocytes and blood serum on germs, that the modern study of this subject began to be so important a factor in medical science. Many theories have been promulgated to account for the facts ; but the practical point is this, that the healthy organism has the power of producing substances which are antagonistic to the life of bacteria, foreign cells and cell products, sometimes destroying the cells or germs, sometimes attacking the poisonous substances they secrete.[2] " The essential feature of vaccine therapy," says Sir A. Wright, " is the scientific exploitation for therapeutic uses of the protective machinery with which the organism is equipped."[3]

Under the stimulus of the invading microbes and their

[1] Lectures on Surgical Pathology, 1876.

[2] See the Huxley Lecture for 1902, by Dr. Welch, *Johns Hopkins Hosp. Bull.*, 1902, xiii, 285.

[3] *Lancet*, 1907, ii, 423.

products, not only does "every adult leucocyte become phagocytic," become converted from a peaceful citizen to a kind of "territorial," but these minute warriors are rapidly mobilised, silently, without tap of drum, like those spectral hosts that in Longfellow's poem fought before the walls of Prague. Moreover, substances are formed—the now well-recognised anti-bodies—which have, many of them at least, a specific relation to the body which leads to their formation.

Inasmuch as injurious substances—germs and their products—are constantly introduced into our body, this battle must be an almost every-day occurrence. Probably, as suggested by Dr. Sim Wallace,[1] the microbes of disease frequently find their way into our mouths and into our systems, and by inducing the formation of anti-bodies, lead to a gradually-formed immunity, whereby we—medical men especially—perhaps escape many infectious complaints.

To return for a moment to our simile of the internecine battle between our protective and healing organisations on the one hand and the disease on the other, the mobilisation means the flooding of the affected part with plasma and leucocytes, and the inflammatory process, with its redness, swelling and heat, is part of the *vis medicatrix naturæ*.

The patient's whole temperature is frequently raised, it is true, but this very rise of temperature is probably protective. Rolly and Meltzer[2] have found, experimentally, that phagocytic action is most potent, not at the normal body temperature, but at 104° F., and the production of antitoxins, etc., is more active when the temperature is raised. This would indicate that the mere reduction of fever is not always to be attempted.

This reaction against noxious material by the formation of specific antidotes, and by the machinery of a well-drilled army of leucocytes, is difficult to explain. Probably the whole process is an exaggeration of normal physiological functions. Ehrlich, as is well known, has formulated what is called a side-chain theory, which is, at all events, useful as a working hypothesis.[3]

[1] *Med. Press and Circ.*, April 28th, 1909. [2] *Brit. M. J.*, 1909, i, 1254.

[3] *Die Ehrlichsche Seitenkettentheorie, erläutert und bildlich dargestellt.* von Dr. P. Schatiloff.

Besides the central principal groups, of which cell protoplasm is built up, there are, says Ehrlich, a number of lateral groups or receptors, whose normal function it is to pass on nutriment to the central protoplasmic group. They have the power, however, of also combining with various toxins, and when the invading poison irritates the cell these receptors are thrown off in large numbers, unite with the toxins and neutralise them, and so prevent these toxins from entering into harmful combination with the chief chemical groups of the cell protoplasm (" Leislungskern "). These receptors constitute the anti-bodies, and illustrate the law of regenerative over-compensation formulated by Weigert.[1]

Here, however, we must again pause to remind ourselves that we are " not the only pebbles on the beach." If we have these marvellous curative and protective mechanisms provided for us, what about the poor microbes ? They have a life to lead, and complex functions of assimilation and secretion of their own, which are, after all, " a reflex in little " of our own existences. Well, Nature has provided for them also, and it seems probable that the anti-bodies formed in our blood for the destruction of the invading *materies morbi* cause the formation of bodies (perhaps by the over-production of microbial receptors) which in their turn tend to protect the invading hosts by reacting with and destroying the poisons which we produce for their destruction.

Nature, we find, distributes her rewards and penalties equally on man and the smallest organisms, just as, in the words of Keble, the sunshine " lightens worlds or wakes an insect's mirth."

And in studying the laws of Nature we must include amongst them those forces which are classed under the convenient heading of the *vis medicatrix naturæ*. Whatever the future of the medical profession may be, it seems to be almost certain that the physiological processes and chemical reactions which I have so inadequately touched upon to-night will have to be studied deeply. In other words, physiology and pathology, in their widest sense, will be recognised more and more as the groundwork of medicine.

[1] *Studies in Immunity*. By Robert Muir. 1909.

In considering the curriculum of the future medical student, one cannot but be appalled at the amount of lectures on various subjects that the poor wretch will have to submit to, so that by the time he takes out his course of demonstrations at a lunatic asylum he will, one would think, be qualified as an inmate of that institution. He will, at the end of his course, be like the madman in *Punch*, who thought he was a poached egg, and went about looking for a piece of toast to sit upon. If one may venture to make a prophecy it is this: that before many years are over medical study will have to be simplified, and that the first two or three years will be devoted to chemistry, anatomy, physiology and pathology, and the rest will not be at a medical school at all, but in the wards of a hospital, the student occasionally, of course, following his cases into the *post-mortem* room.

Thinking over what I have written, I fear the general impression may be that I have scoffed at holy things, such as drugs and physicians, and who am I that I dare scoff? But I have only intended to express my disbelief in empirical drugging when it has no reason to be trusted from experience, or is not founded upon some physiological principle. I own that many of our most noted remedies are empirical. Until a thing has been tried on man or animals one cannot say much. But the whole history of medicine shows how great faith one generation has had in a mode of treatment that the next generation utterly disbelieves in. Priscian[1] says, for example, that "asses' dung dried and used as a dentifrice will immediately cure toothache." But I have not tried it.

In an old book called *Anglo-Saxon Leechdoms*[2] there is a simple remedy for lunacy, as follows: "In case a man be a lunatic, take skin of a meer-swine or porpoise, work it into a whip; swinge the man therewith; soon he will be well. Amen."[3] I should like to try this on some of my patients, but I dare not. But many remedies have less to recommend them. No doubt they had their day, as every new drug has. Special lines of treat-

[1] Withington's *Medical History*, p. 176.

[2] Master of the Rolls Series. [3] *Ibid.*, p. 181.

ment "have their day, and cease to be." Sometimes the patient "ceases to be" also.

In conclusion, I cannot help feeling that in studying the various processes that go on for our protection and recovery from disease and accident in the "holy secrets of our microcosm," there is something which appeals very powerfully to the imagination. To the man who takes a hopeful view of things the *vis medicatrix naturæ* is a great beneficent force, or series of forces. To the pessimist the whole thing merely emphasises the struggle between good and evil. To the latter I would quote the words of Kant, the great German thinker: "Der mensch will eintracht, aber die Natur weiss besser was für seine Guttang gut ist; sie will zwietracht." "Man would prefer harmony, but Nature knows better what is good for her race; she insists on a discord."[1]

CASES OF PNEUMONIA.[2]

BY

ARTHUR FELLS, M.B., C.M. Edin.

THE following cases of pneumonia appear to be worth recording, the first because of the number of lesions, the other two on account of an infrequent sequel.

Case 1.—A well-nourished boy of 15. Was first seen on May 16th, 1909, with well-marked signs of early pneumonia of the right base. For four days he was delirious, with a temperature varying from 102° to 104°. On the seventh day the temperature fell to 100.7°, and there was every appearance of a crisis. At night, however, the temperature was 102.4°; next morning it was 103°, and a pneumonic patch at the left apex was found to have developed. On the thirteenth day the temperature fell to 98.6° and there was again every appearance of a crisis; but next

[1] Quoted by Dr. Baudaline, *Med. Rec.*, 1903, lxiv, 81.

[2] Read at the meeting of the Bath and Bristol Branch of the British Medical Association, held at Bristol, October 27th, 1909.

day the temperature had risen to 102°, and a patch of pneumonia was found at the left base. From the sixteenth to the eighteenth days the disease appeared to be resolving by lysis, and there was a general improvement in every respect. On the nineteenth day the temperature assumed a zigzag character, varying from 98.7° in the morning to 101.6° at night, each day mounting slightly higher. The old area of dullness at the right base was found to be rising higher, but the breath sounds were readily audible right down to the base of the lung. The apex beat was not displaced, but a loud systolic mitral murmur had developed. The boy's general condition was very bad, he was wasting rapidly, and although not delirious, was very childish. Pus having been detected in the right thorax on the twenty-second day, a rib was resected, and a large quantity of pus evacuated. For a few days the patient seemed to improve, but the pulse rate kept at 130 to 150, the respirations at 30 to 40, and the temperature remained above normal. For some days the boy had complained of pain in the left hip, stating that he had sprained it shortly before the onset of the pneumonia. By about the twenty-eighth day the hip, which had assumed a position of semi-flexion and abduction, was found to be tense and swollen, especially on the adductor aspect. It rapidly became extremely tender, but no definite fluctuation could be detected. The discharge from the empyema had almost ceased, but the urine, which had been examined several times with negative results, was now found to contain granular casts, blood and much albumin. On the thirty-third day the patient was removed to the hospital, where Mr. Lansdown kindly saw him late in the evening, and at once performed an arthrotomy of the left hip, evacuating an excess of blood-stained synovial fluid from the joint but no pus. On the removal of the clips from the hip incision there was an escape of pus from the wound, which was found to yield a pure culture of the pneumococcus. The discharge from the hip ceased in a few days, but still the boy did not improve satisfactorily until the forty-third day, when there was a gush of pus from the thoracic incision (the tube had been removed some days previously), whereupon the temperature fell to normal and remained so. Through most of the illness the boy had taken nourishment well, but he had lost two stones in weight, and the rapidity of the wasting was shown by the development of very prominent striæ atrophicæ across the loins, on the right buttock and thigh, and on the right arm. When at the Convalescent Home he lost all trace of the nephritis, the left hip appeared to be as sound as the right, and he rapidly put on flesh; but the pulse rate was still 100, and the mitral murmur was still present. During two months in the country the boy more than regained his lost weight, grew nearly three-quarters of an inch in height, and on his return was found to have a pulse rate of 75 and normal heart sounds.

The pneumococcus was thus responsible for three distinct and consecutive pneumonic attacks—an empyema, a nephritis and an arthritis. The nature of the cardiac condition was not clear. It is very improbable that it could have been an endocarditis, and the murmur bore no resemblance to a pericardial rub. Its history suggested a murmur due to dilatation, but if so, other physical signs of that condition were lacking.

As regards nephritis in pneumonia, Dr. Hector Mackenzie,[1] during the discussion upon that disease before the Royal Society of Medicine in 1907, quoted twelve instances of the former in 750 cases of the latter, and of the twelve, eight proved fatal. The same speaker referred to sixty-three cases of pneumococcal arthritis occurring in pneumonia collected from several sources, and of these forty-one proved fatal.

For statistical purposes this form of arthritis occurring in pneumonia should be distinguished from the corresponding joint condition occurring apart from any general infection.

In the following cases pneumonia was followed by thrombosis in the veins of the left leg.

Case 2.—A fragile man, of about 40, was taken ill with what was probably influenza on February 21st, 1908. When first seen, on the 27th, pneumonia of the right base was developing. He was very ill for five days, resolution occurred by lysis, the temperature falling from 103.5° to normal in five days. On March 17th, twenty-five days after having first taken to bed, he got up for the first time, and had just time to put on his trousers when he was seized with violent pain in the left leg, which almost caused him to faint. He at once returned to bed, and when seen a few hours later, the left leg and thigh were much swollen, very hard and tender. The superficial veins stood out in dark blue projections, acutely dilated. The circumference of the left calf was $2\frac{1}{4}$ inches, and the left thigh $1\frac{3}{4}$ inches in excess of the other limb. Nine days later the affected limb was still one inch larger than its fellow, the internal saphena vein could be felt as a thick cord, and there was much tenderness over the deeper veins. For several weeks there was much weakness and some swelling of the limb.

Case 3 presents several points similar to the foregoing. On March 2nd, 1908, a robust woman, of about 60, fell down a flight of stairs and badly bruised the lower ribs of the right side. Five days later pneumonia developed in the right base.

[1] *Proc. Roy. Soc. Med.*, 1908, i, Med. Sect., p. 14.

The symptoms and physical signs were typical of lobar pneumonia, but again resolution was by lysis. Twenty-five days after the original accident the patient got out of bed for the first time, and was suddenly seized with violent pains in the left leg, accompanied by swelling, the left calf being 1¼ inch more in circumference than the right. The swelling was firm, resistant and very hard, and the pain remained severe for several days, then gradually diminished, but the limb still needs the support of a bandage.

Many books make no reference to thrombosis as a complication or sequel of pneumonia, and personally I have not met with it in some 300 cases treated in Indian hospitals. Dr. Mackenzie, on the occasion already referred to, spoke of it as occurring once in every 150 cases, and usually in the left leg. In the two instances given above it will be noticed that the pneumonia followed some other condition, that it involved the right base and resolved by lysis. The thrombosis appeared with startling suddenness when the patient first stood up after three weeks in bed, and when convalescence from the pneumonia was well established. The swelling was peculiarly hard, and there was no pitting on pressure.

Progress of the Medical Sciences.

MEDICINE.

Infectious or malignant endocarditis of the chronic type is often peculiarly insidious in commencement, and may go on for months before a certain diagnosis can be made. Osler, to whom the recognition of these very prolonged cases is largely due, lays down[1] that there are two groups, one with irregular fever and "chills" of a malarial type, and the other with variable fever for four or even twelve months and often no "chills" at all. The disease is a true septicæmia, and the endocardial factor may be in the background. There may be a history of rheumatic fever, and in many an old valvular lesion; or there may be no symptoms for months except a slight daily rise of temperature, varied by occasional periods of apyrexia. Indeed, the patient may sometimes go about his work for a while feeling but little amiss. In ten cases reported by Osler there were only four where the diagnosis was confirmed by well-marked embolism, causing

[1] *Quart. J. Med.*, 1909, ii, 219.

an enlarged spleen, paralysis or hæmaturia, but seven showed transient erythematous nodules or wheals of a pink colour and with a white central point or area. These wheals are therefore an important indication when present. The disease may be mistaken for tuberculosis or typhoid, and blood examinations may be negative or show a strepto-, pneumo-, or staphylo-coccal infection, or even an influenzal or gonococcal one. All his cases ended fatally, but he recognises the possibility of successful vaccine treatment.

Horder[1] discusses the same subject in a report on 150 cases of infectious endocarditis. Besides ordinary acute attacks he notices a latent form where no symptoms during life may be found, a subacute group, and the true chronic form of six to eighteen months, duration or longer. In the subacute one there are usually gradual heart failure, prostration, rheumatic pains and pyrexia. In the chronic type we may have on the one hand loss of flesh, progressive anæmia, irregular fever, vague pains, red, tender patches of skin, and slight valve lesions; but on the other hand the general health may seem unaffected, and nothing conclusive may be found before some embolism occurs. An irregular, remittent fever is the usual type of pyrexia, which may run a very mild course and be absent for several days together. He considers that organisms in the blood can with care be detected in 90 per cent. of the patients, and draws attention to the frequent occurrence of the influenza bacillus and of streptococci of low virulence, viz. S. fæcalis, salivarius and anginosus. The presence of these organisms accounts for the absence of suppuration, the scanty leucocytosis and fever, and the chronic type of the disease. The prognosis is very bad in all forms. None of the ordinary remedies have any effect, and great hopes were formed that antisera would be efficacious, but so far they have failed, only one of Horder's cases having been cured, and in this one no definite organism had been isolated. As ordinary streptococcal sera are made from virulent streptococci, he suggests that better results may be hoped for from a serum derived from fæcal or salivary types and given by venous injections. Wright's vaccines have been tried, but Horder cannot report a single success in twelve cases, though Barr[2] claims one complete cure about which, indeed, serious doubts have been expressed. Horder has, however, seen considerable temporary improvement, and will in future give bactericidal sera at the same time as the vaccine.

Gilman Thompson[3] reports seven cases of infectious endocarditis treated by vaccines, and claims to have had a complete cure in three, with beneficial results in all. In the diagnosis he lays stress on the petechiæ, the marked anæmia, the harsh booming character of the heart murmur when present, and the

[1] *Ibid.*, p. 289. [2] *Lancet*, 1907, i, 499.
[3] *Am. J. M. Sc.*, 1909, cxxxviii, 169.

irregularity of the fever. His results are certainly extraordinary, and if similar success is obtained by other people a very different outlook will be given to the disease.

The instrumental measurement of **blood pressure** at the bedside is altering our view of many diseases, and opening up a wide field for research. Without discussing the conditions under which the use of vasodilators is desirable and useful, it is well to know what is their exact effect on high blood pressure in the human body. It is quite useless giving them with the idea that a slight but lasting reduction can be brought about in the way that the alkalinity of a fluid can be gradually reduced by less or more acid added to it.

Edwin Matthew[1] has observed and reported the rapidity, the duration and the amount of reduction produced by fixed doses of the vaso-dilators in common use. Thus he finds that two minims of liquor trinitrini commence on the average to act in one minute, and produce a maximum fall in four and a half minutes, which usually amounts to about 28 mm., and at once begins to pass off, so that the original level is reached in thirty minutes. With two or three grains of sodium nitrite, the fall commences in five minutes, reaches a maximum in fourteen, when it measures 32 mm. This, however, continues for about forty-five minutes, and passes off entirely in two hours. Half a grain of erythrol begins to act in five and a half minutes, and the maximum fall is reached in twenty-two, when it amounts to 35 mm., which persists for an hour or two. The original level is not reached till six hours have elapsed.

He reminds us of a well-known fact that in certain conditions little or no dilator action is produced by these drugs, and harm results if excessive doses are used to force a result. An instance of this may be seen in some advanced cases of granular kidney, and occasionally in advanced arterio-sclerosis, though not in all, as W. E. Russell notices. Matthew found that no effect followed the administration of tablets of certain good brands, apparently because they were hard and insoluble; again, as long as much œdema existed very little effect was produced. He claims that in suitable cases sodium nitrite or erythrol in the above doses, given three times a day, will cause a reduction of pressure throughout the twenty-four hours. It is not clear how this results, as neither of them has an eight-hour period. On the whole, he found that a fall of about 30 mm. was usually sufficient to relieve headaches, giddiness and other troubles, and that if maintained the patient's general condition improved. Hence the above doses were chosen.

His experiments do not show that any permanent reduction results from prolonged administration, such as has been claimed for guipsine, an extract of mistletoe. Trinitrine indeed soon loses

[1] *Quart. J. Med.*, 1909, ii, 261.

its effect except in increased doses. Perhaps the most important question is whether a short daily relief of pressure by these drugs strengthens the vessels and saves or puts off a permanent decay of the arterial system apart from their temporary value in emergencies. The improvement seen under the use of regular purgatives may be an action of this kind, or it may be due to increased elimination of toxins, though the latter view seems insufficient to account for the results. There are some cases where the rise of pressure is compensatory, as perhaps in early Bright's disease, but there are others where it is nothing of the kind. In the latter there is good reason for combating the high tension.

The treatment of diabetes is the subject of an interesting paper by Janeway.[1] He aims at estimating the severity of both the disturbances of metabolism present, viz. the degree of glycosuria and that of acidosis. Thus he recommends all patients to be put first on a test diet of proteid and plenty of fat, equal to about thirty-five calories per kilo of their weights, and to this is added three ounces of white bread. (1) If the sugar disappears on this diet the glycosuria is of the mild type and acidosis is negligible. For these patients bread is cautiously increased till we find the amount they can take without producing sugar. Next we should test which variety of starch, *e.g.* potato, rice, oatmeal, the individual best tolerates, the ideal being to prevent glycosuria for long periods altogether. Occasional periods of strict diet should be enforced, but meanwhile we must maintain the patient's nutrition. If the sugar does not vanish with the low diet we may require to cut off even the three ounces of white bread, and in (2) *moderately severe* cases this will suffice. In (3) *really severe* ones we must proceed to reduce the proteid. There will be needed in (2) 2,000 calories of fat, or seven ounces, for an average man, and not more than 600 of proteid, or five ounces. This can be managed on a carefully planned dietary, but the fat, whether butter, bacon, cream or oil, often disagrees, and may require some alcohol to aid its digestion. Every effort must be made to get the patient's intelligent co-operation. It will be necessary in (3) to reduce the proteid given above for a time, say to three ounces or less, and in such cases occasional days of very low diet are most useful. On these nothing but eggs, bacon, greens, coffee and alcohol should be given.

As to the acidosis, a daily watch must be kept by the ordinary tests. It is claimed that the amount of the abnormal acids can be very simply and easily obtained by Folin's method for estimating ammonia. A still simpler method is described by Mathison in the *British Medical Journal*, 1909, vol. i, p. 715. If then the ammonia amounts to two, three or more grammes a day, or a marked ferric chloride reaction is present, strict diet periods must be shortened, and sudden changes in

[1] *Am. J. M. Sc.*, 1909, cxxxvii, 313.

carbohydrates avoided. Bicarbonate of soda half to one ounce daily should be given, proteid restricted and occasional days of low diet employed. The butter, too, should be thoroughly washed to get rid of any butyric acid; but to allow a full carbohydrate diet almost always fails to do good.

In every type of the disease we should endeavour to reduce the sugar to a minimum. Diabetic breads are of very little value, and can be replaced by smaller amounts of white bread.

Rudisch[1] thinks that a strict diet should be employed, but would reduce the amount of calories, especially of fat, finding that diabetics actually do better with a very spare diet. Tomato and other vegetable soups, and in some cases vegetable fats, are very useful. He claims that under daily doses of atropine, sugar disappears much more rapidly than with a carbohydrate free diet alone, if it is given cautiously and in increasing amounts up to the limit of tolerance. Jacobi confirms his results, and gives the tincture of belladonna to children till the cheeks flush after each dose without dilatation of the pupils. Both writers speak of the value of bicarbonate of soda in all cases, and of opium in many.

GEORGE PARKER.

SURGERY.

Wounds of the heart.—It is rarely that the opportunity is presented for personal experience in dealing with wounds of the heart. About 160 cases of operation for this condition have been recorded since Farina, of Rome, published his case in 1896, and Charles H. Peck[2] has recently added another case. The patient was seen about half an hour after the accident. She was profoundly shocked, and no radial pulse could be felt. The area of heart dulness was increased. There was a stab wound at the left border of the sternum, over the third costal cartilage, which bled very little. Operation was commenced within forty-five minutes after the receipt of the injury. A quadrangular flap, with the base external, its margins at the second interspace, left edge of sternum and fifth interspace, was rapidly reflected, the fourth, fifth, and sixth costal cartilages were cut at their sternal attachments. The internal mammary vessels were ligatured above and below. The ribs were cut at their costochondral junction to form a hinge, and the musculo-cartilaginous flap turned outwards, the pleura being separated with a swab.

Intra-pericardial tension was so great, that the heart beat could not be felt. On opening the sac, 300 cc. of dark blood escaped; there was immediate return of the radial pulse. A

[1] *J. Am. M. Ass.*, 1909, liii, 1366.

[2] *Ann. Surg.*, 1909, l, 100.

wound about one c.m. long was found in the right auricle; a stream of blood spurted from this at each systole. The hemorrhage was controlled after the introduction of four sutures. The rapid tumbling action of the heart rendered the stitching somewhat difficult. The wound was closed without drainage. Intravenous saline injections were given. The patient recovered, and left the hospital twenty-four days after the operation.

Vaughan[1] narrates the case of a man aged thirty-two with a wound half an inch long, just internal to the left nipple, between the fourth and fifth ribs, very little blood escaping. He was semi-comatose, partly from drink. Pulse 120. Heart sounds very feeble. Operation performed a little more than an hour after the infliction of the injury.

A quadrangular flap was raised containing the fourth, fifth, and sixth costal cartilages, the hinge being internal. In raising the flap the pleura was widely opened and the lung collapsed. The wound passed through the lung and into the right ventricle. There was a little blood in the pericardium, and about a pint in the pleural cavity. The wound was closed with a continuous silk suture. Some bleeding occurred from the stitch holes; this was stopped by a second row of Lembert stitching. No drainage was used. The pulse was better after the operation. The patient developed *delirium tremens*, but eventually recovered. The writer tabulates all the recorded cases, noting the important features of each.

Wounds of the ventricle are very much more frequent than wounds of the auricle, in the proportion of 136 to 8. The two ventricles were wounded with equal frequency. All writers agree that wounds of the auricle are more dangerous than those of the ventricle.

The incision selected should be one that gives the most free exposure of the heart, and is least likely to open the pleural cavity. Cases have been dealt with by incisions through an intercostal space, and by resection of portions of costal cartilage and sternum; but these methods are not satisfactory, they do not give free access and entail a much longer operation. The best method is to raise a quadrangular flap, as in the two cases recorded above. The hinge may be external or internal; the latter is to be preferred, as the pleura is more easily reflected without being opened. If more room is required, portions of the sternum can be easily removed after reflection of the flap.

In wounds of the right side, the flap can be commenced to the right of the sternum, a portion of this bone being included.

The internal mammary artery requires ligation.

It is generally impossible to be sure whether the suture penetrates the endocardium or not; it is well to endeavour to avoid doing so, but it does not appear to matter much.

[1] *J. Am. M. Ass.*, 1909, lii, 429.

The tumultuous action of the heart renders the introduction of sutures somewhat difficult; this may be overcome by inserting tension sutures to steady the organ, and by holding it in the hand. It is not possible to insert stitches during diastole only, the action is too rapid, in fact it is rarely possible to say during which part of the cycle they are inserted. In some cases of heart failure massage or stimulation appears to have been useful, in many it has had no apparent effect. Drainage should not be used; hæmostasis should be obtained by suture; drainage is then not only useless, but dangerous as a source of infection. The mortality of operated cases is 65 per cent., mostly from hemorrhage; 20 per cent. were moribund beforehand; others died from sepsis, resulting in pericarditis, pleurisy, and pneumonia. Over 50 per cent. had some infection.

The diagnosis may be difficult or impossible.

The position of the external wound is not a safe guide. If there is doubt, the external wound should be enlarged to ascertain if it has penetrated the chest wall; if this be the case, and there be symptoms of hemorrhage or pressure on the heart, the operation should be proceeded with. If the wound involves the pleura as well as the heart, there will be anæmia and pneumo-thorax. A splashing sound indicates the presence of blood and air in the pericardial sac. In only a comparatively small proportion of cases will surgical intervention be possible. In the larger wounds fatal hemorrhage rapidly takes place. In the smaller wounds the fatal issue results from heart "tamponade," the intra-pericardial pressure preventing entrance of blood through the great veins, with consequent pumping dry of the ventricles.

Travers[1] recorded a case in which a boy lived for ten days after suture of an irregular lacerated wound $2\frac{1}{4}$ in. in extent in the right ventricle. It was caused by his being impaled on the spike of a railing. A portion of the sternum was lodged in the wound and partially controlled the hemorrhage. On removing this there was profuse bleeding, which was checked by insertion of three fingers into the wound. The suture finally stopped the bleeding. It is not quite evident from the account what the actual cause of death was. The *post mortem* revealed a fibrinous exudate in the pericardium, and there had been a free serous discharge from the wound, which suggests sepsis. The record of temperature is not given. One rigor is reported.

H. G. KYLE.

OBSTETRICS.

The occurrence of red degeneration in fibromyomata of the uterus during pregnancy.—Considerable attention has been recently directed to the occurrence of this remarkable change in uterine fibroids. Although the phenomenon is met with in

[1] *Lancet*, 1906, ii, 706.

fibroids of the non-gravid uterus, its occurrence is more frequent, and the characteristic signs more marked, when associated with pregnancy. Two features which stand out prominently are pain and tenderness. One remarkable feature about the pain is the suddenness of its onset; indeed, it is sometimes so severe and its onset so sudden that it resembles the pain experienced by patients when an ovarian tumour twists its pedicle, or a gravid Fallopian tube bursts. Abdominal section has been performed quite a number of times under the supposition that one of these conditions was present, when at the operation it has been found that all the symptoms were due to red degeneration occurring in a uterine fibroid. Another interesting point with regard to the pain is that it is only present during the early stages of the degenerative process, that when the tumour is completely disintegrated the pain ceases. In a uterus containing multiple fibroids it commonly happens that only one of them exhibits the red change, and becomes painful, while the other remains colourless and insensible. If a fibroid undergoing this change be examined, it will be found that instead of being of a pale yellow or white colour it has assumed a deep red or mahogany tint. In the early stages the change in colour is exhibited in streaks, but as the degeneration advances the whole tumour becomes affected, and in well-marked examples becomes quite soft and diffluent. An interesting point is that no micro-organisms have been found, and this is the more surprising when it is remembered that many of these tumours have a somewhat offensive odour. On microscopic examination the tissue of the fibroid is found to be necrotic and does not stain; the characteristic redness is due to the diffusion of blood pigment through the necrosed tissues. The softening of the tissue composing the tumour sometimes takes place with great rapidity, so that even the hardest fibroid becomes in a very short time quite soft and diffluent. With regard to treatment, it is pointed out by Bland-Sutton,[1] in a very instructive paper on this subject, that when pain and tenderness are present in a mild degree they generally subside if the patient is kept at rest in bed. If, however, the symptoms are severe prompt surgical treatment will probably be necessary.

The mortality from **puerperal sepsis** in England is still high. It is estimated that in England and Wales at the present time more than 2,000 women lose their lives every year from this cause. At the recent meeting of the British Medical Association Dr. Thomas Wilson[2] opened an important discussion on this subject, and reviewed the various modern methods of treatment. The most severe form of puerperal sepsis usually arises during the first few days after delivery, and at the onset it is very difficult to say whether we are at the commencement of a serious or even fatal illness or merely a passing toxæmia. The rise of temperature

[1] *Brit. M. J.*, 1909, i. 1471. [2] *Ibid.*, ii, 1037.

is usually the earliest and most convenient symptom on which to decide upon treatment. In cases where the temperature rises to 102° F., and a careful examination fails to discover any obvious cause, such as an inflamed breast, sore throat, etc., it is recommended that an intra-uterine douche should be given. Of the various solutions used he prefers iodine, one drachm to the pint, five or six pints being used. If the temperature does not drop within twelve hours further treatment should be undertaken. The indication is to make certain that no putrescible materials, such as clot or portions of placenta or membrane, are retained in the uterus. In attempting to fulfil this indication we find that practitioners are fairly sharply divided into two classes, those who advocate the use of the curette and those who rely upon digital evacuation. The objections to the curette are that when applied to the interior of the puerperal uterus new lymph and blood channels are opened up which offer the germs easy access to the deeper layers of the uterine wall, and also by its use the protective barrier of leucocytes, which form the first line of defence against bacterial invasion, is removed. Taking everything into consideration, digital evacuation presents solid advantages over the use of the curette. When local measures, douching and digital exploration have failed, and the septic germs have penetrated more or less deeply into the tissues, the problem of treatment becomes much more difficult of solution. The indications are still to attempt to destroy the germs and their poisons, and to encourage and reinforce the natural powers of resistance of the body. Direct attempts to paralyse or kill the germs have been made by the injection into the circulation of such substances as formalin, corrosive sublimate or collargol. The obvious difficulty is to find a substance that shall be effective on the germs and still not injure the patient's tissues, and so far no satisfactory substance has been discovered. Indirect means of attacking the invading organism include attempts to favour the production and activity of phagocytes, which originate chiefly in the bone marrow, and which appear to play an important part in the defence of the body against bacterial invasion. The introduction of a large quantity of water or normal saline solution has been supposed to act in this way, and at the same time dilutes the poison and favours its excretion. Encouraged by the success that has followed its use in diphtheria, specific immune serums derived from animals have been used, but so far the results have been disappointing. More recently vaccines have been prepared from the invading organism actually present in the patient, and these have sometimes appeared to give good results.

Drs. Hartwell, Streeter and Green[1] record ninety-seven cases of sepsis treated with bacterial vaccines, eighteen of which were cases of puerperal infection, and all of the eighteen recovered.

[1] *Surg., Gynec. and Obst.*, 1909, ix, 271.

In four blood cultures were made. One showed streptococcus pyogenes, one staphylococcus pyogenes aureus, and two were negative. Fifteen showed streptococcus from the cervix in pure or nearly pure culture. In all the cases local treatment such as douching, curetting, etc., was undertaken, so that the exact value of the vaccine is somewhat obscured. In many of the cases, however, no improvement took place after the local treatment, whereas the change for the better after the vaccine was very marked. In every case the pathogenic organism was determined by culture, and in the majority an autogenous vaccine was used. The vaccines were made up according to the method devised by Sir A. E. Wright. The dose given varied from five to twenty-five millions. Occasionally as the dosage was increased reactions were seen; they consisted usually of slight headache and back-ache, accompanied in the more severe cases by nausea and vomiting, and a rise in temperature of a degree or two. They followed several hours after inoculation and disappeared again in a few hours. These reactions were rare, and as far as is known were followed by no ill-effects. Whenever they occurred the amount of the inoculation was reduced so as to avoid their repetition. Local soreness at the site of inoculation was frequently noted. In most of the cases the improvement after injection was most striking. The writers concluded, as a result of their experience, that bacterial vaccines should be employed in all cases of puerperal infection which do not immediately respond to routine treatment.

The success that has attended surgical intervention in such affections as peritonitis from disease of the vermiform appendix has encouraged a more extended trial of various operations in puerperal infection. The surgical measures that can be undertaken in suitable cases consist in incision and drainage when large collections of turbid sero-fibrinous or purulent exudations are present in the peritoneum. The best method of operating is still unsettled. Some surgeons open the abdomen either by one large or several small incisions and secure free drainage, while others advocate early and free opening of the peritoneal cavity by the posterior vaginal fornix. It is not advisable as a rule to remove infected uterine appendages in recent cases of puerperal infection, but to be content with simply opening up any purulent foci that may be present, and providing adequate drainage, reserving removal to some later date if it should be necessary. The operation of hysterectomy which has been advocated by some in cases of puerperal sepsis has proved to be very fatal, and is of course quite useless in cases of general infection. When infection has spread into the uterine or ovarian veins, giving rise to thrombo-phlebitis, the attempt has been made to cut short the disease by ligature or excision of the diseased vessels; the results, however, have been far from

encouraging. The curative treatment of grave cases of puerperal infection is not, and from the nature of the disease probably never will be, satisfactory. Hope for the future must still centre round prevention.

D. C. RAYNER.

Reviews of Books.

The Human Species. By LUDWIG HOPF. (Authorised English Edition.) Pp. xx, 457. London: Longmans, Green & Co. 1909.

The author's aim in this most comprehensive book, as stated in the preface, is "the comparison of the essential characteristics of man with those of lower animals in the light of the results of recent research."

The author commences with a historical account of the opinions held in various countries and at various periods concerning the origin of man, and then goes on to discuss the present distribution of mankind, and whether man is to be regarded as constituting one or more than one species. He then considers the question as to the ancestors of man, and whether we have proof of his existence in the Tertiary period, concluding that we have as yet no proof of this. Then follow 130 well-illustrated pages devoted to comparative anatomy and histology, and these are succeeded by about 70 pages dealing with comparative physiology. A most interesting and comprehensive psychological section succeeds with reference to such subjects as emotions and their expression, social conditions and observances, religion, arts and handicrafts, painting, music, writing.

The last section of the book is concerned with comparative pathology and pathological anatomy, and after a somewhat brief account of abnormalities and monstrosities a long series of infectious and non-infectious diseases is discussed, and in the great majority of cases it appears that man shares the liability to attack with the lower animals.

The English translation seems to be very well carried out, the illustrations are good and numerous, and the printing and general get up of the book are all that could be desired.

Graphic Methods in Heart Disease. By JOHN HAY, M.D. Pp. xvii, 184. London: Oxford Medical Publications. 1909.

This is a very good little book. Dr. Hay has undertaken a difficult task. The study by graphic records of the derangements of the circulation caused by disease is a highly technical matter,

and its exponent, if he wishes to be adequately understood, must be very lucid. But this exposition is not merely lucid. By a judicious blending of theory and illustration, Dr. Hay has succeeded in writing a book which may well interest all occupied in the practice of medicine, and not simply those who are specially interested in the study of heart disease. The more controversial parts of the subject have, we think wisely, been avoided, and the error, common among "polygraphers," of finding out too much from their tracings, is but little in evidence in these pages. The book is, therefore, eminently fitted to act as a guide to all who want an introduction to this most interesting branch of clinical medicine.

On the Poison of Venomous Snakes and the Methods of Preventing Death from their Bite. Reprinted papers by the late Sir JOSEPH FAYRER, Bt., K.C.S.I., M.D., Sir LAUDER BRUNTON, Bt., LL.D., M.D., and Major LEONARD ROGERS, I.M.S., M.S. Pp. 174. London: Macmillan & Co. 1909.

This is a reprint of papers which appeared in the *Proceedings of the Royal Society* between the years 1873 and 1904. It is a record of careful research and of conclusions based on two hundred experiments upon animals. The greater part of the book deals with the physiological action of venoms, proving the practically identical character of the poison of both colubrine and viperine snakes, though the local action of the latter is shown to be more pronounced. This corresponds with clinical experience, the bite of a viper causing intense pain, with extravasation and swelling, going on to sloughing when life is sufficiently prolonged; whereas in many cases of cobra bite there is but little to see locally except the double puncture. The rapid putrefaction developing in venom poisoning, referred to by the authors, has since been shown by Ewing and Martin to be due to the fact that the venom destroys the bactericidal power of the serum.

The book closes with the experimental proof of the value of the permanganate treatment of snake bite. Animals which had received three times the minimum lethal dose of venom survived, though an interval of ten minutes was in some cases allowed to elapse before the treatment was applied, whilst a "control" died in four and a half hours. If Brunton's simple permanganate apparatus were in the hands of village headmen and the minor officials that abound in Indian villages, not a few of the 20,000 lives lost annually in that country from snake bite might be saved. The researches of Frazer and Calmette have given us the more perfect and potent treatment by antivenene, but its cost and method of application limit it to the hands of the few, whereas Brunton's lancet and permanganate might be scattered broadcast.

Medical Inspection of Schools. By A. H. HOGARTH, M.B., B.Ch.(Oxon.), D.P.H. Pp. 360. London: Oxford Medical Publications. 1909.

This is a timely and useful handbook, written by the right man. It is not only of value to school medical officers and to all medical practitioners interested in the training and health of school children, but to teachers also, and certain chapters on organisation and administration might well be studied by all school managers and members of Education Committees.

In many countries, notably Sweden, Norway and Argentina, followed by Switzerland, Germany and the United States, schemes dealing more or less effectively with the complex problem of school hygiene have gradually been evolved, generally springing from local municipal effort, later becoming centralised; but in England there were few centres in which any serious attention had been given to the matter, when the Education (Administrative Provisions) Act of 1907 suddenly imposed upon every local Education Authority the duty of providing for the systematic medical inspection of all children in the elementary schools of England and Wales.

How unprepared the country was may be judged by the fact that "it was not until the Act was actually placed on the Statute Book that a medical officer was appointed to advise the Board of Education, and the first official memorandum was issued only five weeks before local authorities were required to institute a system of medical inspection."

For some years past the Education Committee of the London County Council had been building up a department of school hygiene, and to the medical officers working there, and at Bradford, and a few other of the northern towns, attention was naturally directed for light and leading.

Dr. A. H. Hogarth is one of this band of pioneer workers, and, under the able direction of Dr. Kerr, he has gained an insight into the problem educational authorities as well as the medical profession perforce must face, entitling him to speak on it with authority.

Though attention to school hygiene is now compulsory, it is well, in view of the general lack of knowledge of and preparation for the work to be done, that he has devoted much space in the early part of his book to a review of its history in this and other countries and legislation respecting it, and to a detailed consideration of the "Case for Medical Inspection."

He claims that there is a "national duty to arrange for the classification of children according to their mental capacities, and to adapt the educational system to the requirements of the several groups of children in order to diminish the present economic wastage of misdirected educational efforts." A most desirable

goal, but of how difficult attainment can easily be realised by those who know the difficulties and complexities of school management in a large city.

If the school doctor is to give advice as to the adaptation of the educational system to specially selected groups, the local educational authorities, who already have troubles enough, must at least be satisfied that the doctor is not only a medical man, but one with an intimate knowledge of the curriculum he ventures to revise, of the varied conditions of school life, of the facilities afforded by the school premises, and of the possibilities of variation in view of local conditions.

In a special chapter Dr. Hogarth discusses the school doctor, his qualifications and his duties, reviewing the influences he considers necessary to the moulding of his ideal man. He urges *inter alia* the value of the Diploma of Public Health, but thinks that " for such as intend to confine their attention to school work this examination should be considerably modified," and suggests that " possibly examining bodies will see their way to dividing this examination into two separate parts, or to issuing a separate diploma of School Hygiene." In view of the large number of medical men throughout the country who must in future be engaged in this work, this suggestion might well be considered by the Council of our new University.

With the authority of one possessing an intimate knowledge of both branches of the work, he discusses the important matter of the relationship of the school medical officer with the medical officer of health, and concludes that " school hygiene should be regarded as co-ordinate with, and not subordinate to, public health, and that both branches of State medicine could be administered side by side without fear of friction or of overlapping of function on the part of executive officers."

The chapters on " School Hygiene and State Medicine " and on " Local Organisation of School Hygiene " are particularly valuable, the present state of chaos in the central administration of matters pertaining to public health, due to the absence of a central department of State medicine, being well illustrated in the table he gives on page 97. But this is not a complete statement of the confusion, for Bristol possesses a Watch Committee administering the Food and Drugs Act and the Midwives Act. with police surgeons as executive officers.

The difficult problem of medical treatment of children found defective receives full discussion. It is one of the most important and urgent questions the medical profession has now to face. Dr. Hogarth sums up the factors comprising the complex problem tersely as follows :—

1. The ignorance, apathy and neglect of parents.
2. The inadequacy and inaccessibility of existing institutions.
3. The real poverty of the people, and their inability to pay for efficient treatment.

4. The tedious nature of the treatment required for the specified chronic cases.

5. The general standing of the practitioners in poor districts.

Of the last factor he is very outspoken, and says "in certain matters affecting the public health many members of the medical profession appear quite devoid of conscientiousness. They constantly certify children as free from infectious and contagious disease and as fit to attend school when they are obviously suffering from ringworm or scabies, and sometimes even in the case of diphtheria their action is not beyond suspicion. For example, out of 240 certificates of freedom from ringworm no less than 234 were found to be inaccurate on microscopic examination of specimens from the affected cases."

We have not space to enter into the discussion of the solution of the problem, but note that Dr. Hogarth pronounces emphatically that "without the school clinic the whole system of medical inspection becomes practically fruitless."

The book concludes with a chapter on the common diseases affecting school life, more useful to teachers than doctors for whom this presentment of elementary facts can scarcely be necessary; and there follow a useful bibliography, a reprint of extracts from official documents cognate to the subject, and a good index.

A System of Medicine. By Many Writers. Edited by Sir CLIFFORD ALLBUTT, K.C.B., and HUMPHRY DAVY ROLLESTON, M.D. Vol. V. Pp. xii, 969. London: Macmillan & Co. Ltd. 1909.

Eleven years have passed since the corresponding volume of Allbutt's *System* appeared in its first edition, and the progress in medicine is made clear by the many changes necessary in writing of *Diseases of the Respiratory System and Disorders of the Blood.*

Acute Lobular Pneumonia and Broncho-pneumonia form a new chapter, in which Beddard and Eyre discuss the many infections which may be present to account for the several maladies included in the title.

Pulmonary Tuberculosis covers vast new fields. In the former edition Dr. Kidd alluded briefly to continental health resorts, adding, "The majority of English patients find such a rigid supervision irksome and disagreeable, and hitherto such establishments have not been in much request in this country."

In the second edition Sanatorium Treatment occupies eight pages, and is admirably described by Dr. Bardswell. The bacteriology of phthisis and cognate problems of immunity, including tuberculin treatment and determination of agglutinins or opsonins, loom large, and mark a huge step forward.

In blood diseases there is much that is new and much that is altered. Especially striking is the tendency to less dogmatism, and there are many relegations of diseases which formerly ranked as separate entities to the category of symptoms, or at best symptom-complexes.

Nowhere more than in hæmatology is Sir Thomas Browne's dictum applicable: "We do but learn to-day that which our better advanced judgements will unteach to-morrow."

The Influence of Heredity on Disease, with special reference to Tuberculosis, Cancer, and Diseases of the Nervous System. A Discussion. Pp. xii, 142. London: Longmans, Green and Co. 1909.

A survey of this discussion on heredity in disease, with special reference to cancer, tubercle, and insanity, from the *Proceedings of the Royal Society of Medicine*, cannot fail to impress upon the reader the exceptional difficulties which have yet to be overcome before the whole question can be placed upon a useful scientific basis.

Dr. G. H. Savage, Dr. F. W. Mott, and Dr. Mercier point out that with mental cases it is almost impossible to obtain reliable statistics.

Dr. Mercier goes so far as to say, "The compilation of the statistics of inheritance which appear year after year in the Reports of the Commissioners in Lunacy is a gigantic waste of time and labour." Dr. Mott, however, has been able to relate some really remarkable family histories, and Dr. Mercier states that in some cases which have come under his notice the insane members in the families have been distributed approximately in accordance with Mendelian rules.

A family history of pseudo-hypertrophic paralysis quoted by Sir W. Gowers affords a good illustration of Mendelian segregation.

The discussion on tuberculosis was opened by Dr. Latham, who weighs very carefully the various circumstances affecting the increase and the check of this disease. Dr. Latham quotes the tuberculosis statistics of New York to illustrate the results obtainable by advanced sanitation, and, arguing from the fact that in autopsies a very large proportion of adult bodies may be shown to have at some time suffered from one or other of the many forms of tuberculosis, he concludes that the communities concerned have acquired a degree of immunity.

It is surprising to find a man of Professor Pearson's standing referring later to this racial acquired immunity as an example of the inheritance of acquired features.

Dr. Latham holds the now generally-accepted view that the

theory of inherited predisposition to tuberculosis is based on insufficient evidence, the real factors at work being the surroundings and the sources of infection to which those children born of tuberculous parents are exposed.

Sir J. McFadyean, who held a brief for the lower animals, lays special stress on the question of bovine tuberculosis being the result of exposure to infection and not of predisposition. In support of this statement he mentions that Jersey cattle appear to be immune in Jersey because the disease has not yet invaded their island, but when reared in England amidst tuberculous surroundings they show no special resistance to infection.

In the matter of heredity in cancer, Dr. Bashford and Mr. Butlin hold opposite views. Dr. Bashford, depending chiefly upon statistics and laboratory evidence, says: "We have not yet obtained even an indication that cancer is inherited." Mr. Butlin, on the other hand, deriving his impressions from his clinical experience, is of the opinion that a tendency to the disease is heritable, and in making his point he applies adverse criticism to the arguments of Dr. Bashford, who, he says, "would exclude those families in which the disease has skipped a generation, and those families in which the theory of inheritance depends largely on cancer in collateral members, and those families in which the disease is not of the same variety in all the cancerous members," thus leaving no evidence by which to establish the theory of heredity.

As might be expected, these discussions did not lead to peace being declared between the Mendelian and the Biometrician camps; in fact, on December 2nd, at the last meeting of the series, a strenuous attack on Professor Pearson's methods was made by Mr. G. P. Mudge. It is difficult in this attack, and the reply to it, to trace any sign of pending reconciliation between the two schools.

The book should be read and re-read.

A System of Operative Surgery. Edited by F. F. BURGHARD, M.S., F.R.C.S. Vol. II. Pp. xxx, 720. London: Oxford Medical Publications. 1909.

The compilers of this *System* have been very fortunate in their choice of the specialists to whom the various articles have been entrusted. In most cases the authors have confined themselves to describing the methods of their own practice, and this gives great weight to their remarks.

Mr. Stiles writes on tuberculous disease of bones and joints, and he describes tuberculous disease of the diaphyses much more thoroughly than is done elsewhere. The wide removal of the shaft of the affected bone is advised in treatment in preference to mere scraping operations. Mr. Edmund Owen's account of

hare lip and cleft palate does not give any definite discussion of the relative merits of the Langenbeck and Davies Colley methods. Brophy's method of approximating the jaws in early infancy is recommended.

Mr. Fagge's article on operations on the jaws is chiefly notable for the useful and judicious references to literature and statistics. Mr. Butlin, whose unique experience of tongue surgery enables him to speak with unrivalled authority, contributes a most valuable article on this subject, which contains a careful summary of all his own cases of excision of cancer of the tongue, numbering 200. The routine use of preliminary laryngotomy in all cases of tongue excision is important. The muscles of the tongue are to be removed when possible right down to the hyoid bone. In operating on cancer of the back of the tongue, the hyoid bone is usually divided, but the tip of the tongue is preserved. These latter operations, whilst giving excellent immediate results, have so far had no ultimate success. In the description of the removal of cancer of the tonsil no account is given of the operation through an external incision, with division of the jaw.

Mr. Fagge's article on the œsophagus is clear and up to date, including an account of trans-mediastinal operations, but mentioning only the negative differential pressure methods, and not the positive.

Mr. Moynihan's article on gastric surgery is a model of clearness and precision, and his minute description of details makes all that is said of great practical value.

Mr. Makin's article on intestinal surgery contains a very great wealth of information, collected both from personal experience and from current literature. In dealing with the colon especially, much recent work is brought together for the first time in text-book form. The relation of the lymph vessels and glands to the different parts of the large intestine, and the operations for their removal, are carefully discussed.

Mr. Barker has undertaken the section on hernia. In this the author has had the difficult task of selecting what is best worth description out of the vast mass of operative methods. As regards inguinal hernia, we think that undue prominence is given to Kocher's and Halsted's methods, whilst such points as the fixation of the stump of the sac by sewing inside the abdominal parietes, or the attachment of the internal oblique to Poupart's ligament in front of the cord, are not mentioned.

The volume concludes with an article on the rectum and anus by Mr. Swinford Edwards. This is very clear and complete, especially in the description of the lateral sacral methods of excision. Perhaps a little more space might have been allotted to the section on removal of the rectum by the combined routes.

As a whole, the volume is characterised by two most excellent

points, both of which will ensure its appreciation by students and practitioners. The one is that all the authors speak chiefly of methods in which they themselves have had large experience; the other is the uniform excellence of the illustrations, which reflects the highest credit on the publishers, authors, and artists alike. [1]

Clinical Lectures on the Surgical Diseases of the Urinary Organs. By P. J. FREYER, M.D., M.Ch. Pp. viii, 425. London: Baillière, Tindall & Cox. 1908.

The author states that his aim has been to give in these lectures a concise and practical *résumé* of the most recent knowledge of the subjects dealt with, and that the methods of treatment advocated are those which he has found to be the best by practical experience.

In the above aim he has, in our opinion, succeeded admirably. Many of the lectures are models of lucidity and full of sound advice, and will serve excellently for guidance in the conduct of treatment for stricture of the urethra, stone in the bladder, and senile enlargement of the prostate. What surgeon can fail to be interested in the matured presentment of the author's technique in prostatectomy?

Much of the subject-matter has previously appeared in print, and is familiar to those in active surgical practice; but the matter is worthy of re-perusal, and we are glad to have it collected in one handy volume.

The student will not find here a full account of cystoscopy nor of the various methods of differentiating the urine from each kidney. These subjects, it is true, are more or less discussed or alluded to, but they are not dealt with in the detailed manner of the sections devoted to enlarged prostate and stone in the bladder.

The treatment of chronic prostatitis by massage of the gland is stigmatised as disgusting, useless, and open to grave objection. The word "disgusting" might well have been omitted. Examination of the rectum is disgusting. Loss rather than gain results from dwelling upon the unæsthetic aspects of many necessary surgical procedures. We ourselves hold that massage of the prostate has a distinct field of usefulness.

[1] The publishers of this *System* have drawn our attention to the review in our last number on the first volume of the *System* as exceeding the limits of reasonable criticism. Our reviewer finds that he was in error when he quoted the author of the article on "Displaced Knee Cartilages" as having recommended immediate massage and movement for the condition. The word "immediate" was not used in the text, and the author's meaning was misunderstood; we therefore unreservedly withdraw this statement, and at the same time desire to express our regret that the remarks made on certain illustrations in another part of the book were unduly severe.

Movable Kidney: its Pathology, Symptoms, and Treatment. By HAROLD W. WILSON, M.B., B.S. Lond., and C. M. HINDS HOWELL, M.B., B.Ch. Oxon. Pp. 104. London: Edward Arnold. 1908.

This work is based upon a careful study of the literature of its subject, upon original anatomical and experimental researches, and upon the clinical observation of cases treated in St. Bartholomew's Hospital in recent years.

In the introductory portion good definitions and a sound system of classification are suggested. Certain anatomical points bearing upon mobility of the kidney are then clearly and suggestively described. The authors incline to the view that the congenital mesonephron of floating kidney is "a myth of the embryologist's imagination," and that a mesentery, if present, is acquired as a result of the mobility of the organ.

The symptoms of acute and chronic cases of movable kidney are separately considered. We are surprised to learn that in a series of forty-one cases of nephrorrhaphy at St. Bartholomew's Hospital, no less than twenty-four were cases with acute symptoms, *i.e.* were characterised by intense pain and shock referable to mechanical obstruction either of the renal vessels or of the ureter, or of both these structures.

The authors, guided apparently by experiments upon cats, are strongly of opinion that nephrorrhaphy with partial decapsulation is much more likely to be successful than fixation without such decapsulation. We should attach more weight to this expression of opinion if clinical evidence had been adduced in its support.

Considered as a whole, the book contains much judicious criticism, an excellent description of the anatomy, pathology and symptomatology of movable kidney, and many records of cases which well illustrate the special points for which they have been selected from the literature of the subject, or from records hitherto unpublished.

Suture of Arteries. By E. ARCHIBALD SMITH, M.B., Ch.B. Pp. viii, 70. London: Oxford Medical Publications. 1909.

Many think that the suture of arteries is quite a new surgical method. It is rather startling to find from the copy of a letter which the author inserts that it was used in 1759, and by the use of a pin rather more than a quarter of an inch in length, around which the suture was twisted. Indeed, the opening in the artery was closed as a hare-lip wound was united some years ago. It healed well and the circulation continued through the artery. The wound in the artery was made to cure a small traumatic aneurism, and the case is referred to in a letter to

John Hunter. Mr. Archibald Smith gives us an historical summary of the operation of suture of arteries, and describes various methods which different surgeons have adopted. He also gives us the account of some operations he has himself performed on animals in Vienna, and the description of some of the histological appearances shown in sections of the healed and healing arteries. He prefers to have the artery slightly on the stretch laterally, during the suturing, which he does either with quilled sutures over catgut or with a series of a kind of single mattress stitch. He uses a pair of small pressure forceps to control the circulation, but he does not grasp the artery with them, he only uses them as a support for a rubber band. Two questions naturally arise in connection with this method of suturing arteries: (1) What is the risk of hemorrhage, and (2) What is the risk of occlusion of the vessel lumen? The first risk seems really very small. The sheath of the vessel and the supporting fascia should be sutured as well as the vessel wall. Archibald Smith's sutures were fine silk on round needles, and penetrated all the coats. He thinks thrombosis always occurs on the portion of suture which penetrates the intima, but does not spread so as to occlude the vessel lumen.

We think this little book is a very useful one, and will well repay careful perusal.

A Manual of Medical Treatment, or Clinical Therapeutics. New Edition. By I. BURNEY YEO, M.D., RAYMOND CRAWFURD, M.A., M.D., and E. FARQUHAR BUZZARD, M.A., M.D. Two Volumes. Pp. xv, 802; viii, 829. London: Cassell & Co. Limited. 1909.—Previous reviews of the original editions of these books have appeared in Vols. XII and XX. The original plan has been continued, but the work has undergone thorough revision. and the author has added the name of Dr. Crawfurd—who undertook to revise the sections on digestive and circulatory diseases, as well as those dealing with diseases of the liver and kidneys—and that of Dr. Buzzard, whose special knowledge and experience of diseases of the nervous system will add greatly to the value of parts dealing with these diseases. The work has been so much appreciated in the past, that this new and revised form of it neither needs nor deserves criticism or commendation.

The "Nauheim" Treatment of Diseases of the Heart and Circulation. By LESLIE THORNE THORNE, M.D. Third Edition. Pp. xi, 82. London: Baillière, Tindall & Cox. 1909.—The original edition is somewhat enlarged by the addition of a full description of the "Schott" Exercises, with twenty-eight photographs of the various phases. The author considers that this edition contains all the details required to enable those unacquainted with the treatment to administer both the "Nauheim" Baths and the "Schott" Exercises. We think,

however, that the skilled experience of those trained to the work must be better than the experiments of the tyro, and it is frequently the case that the experimental learner fails to obtain the marvellous results which are commonly reported by the enthusiasts of the Nauheim methods.

Health, Morals and Longevity. By GEORGE GRESSWELL, M.A., L.R.C.P. & S. Ed., and ALBERT GRESSWELL, M.A., M.D., M.R.C.S. Pp. xii, 229. Bristol: John Wright & Sons, Ltd.—The purport of this book, as stated in the preface, is to give a "short *résumé* of the more important conditions of living a healthy life." This naturally leads the authors into many fields of inquiry. They touch upon morality, conduct, the germ theory, notification of infectious diseases, old age, pain, sleep, nutrition, cleanliness, death, and other important subjects. The views of many philosophers and scientific workers are quoted, and interesting statistics are given as to the duration of life in different animals and plants, and so forth. Such questions as immunity, phagocytosis, insomnia and narcolepsy are not forgotten, so that the reader has a wide choice, and can browse on many pastures. An immense amount of diligence and labour have been spent on the book, and it may serve a useful purpose as a work of reference of a somewhat superficial sort; for the list given of the subjects discussed is sufficient to show that not very much space can be given to each. It may be described as a compendium of current views on many frequently recurring and interesting questions.

Operative Nursing and Technique. By CHAS. P. CHILDE, F.R.C.S. Pp. xiii, 224. London: Baillière, Tindall & Cox. 1909.—This little book of 217 pages is a model of clearness and conciseness. It relates, in an exact and detailed manner, the author's requirements of his nursing staff. The method of attaining asepsis is thorough and logical, though perhaps there is here some unnecessary repetition. The description of nursing is almost confined to that of abdominal cases, but this is exceedingly good. A chapter on instruments is hampered by the difficulty of selection of the important from the unusual and rare ones. The illustrations are clear and well selected, and the book is one which ought to be accessible to every nurse during her training.

Occasionally the imagination is unintentionally stimulated, as where it is suggested that for the examination of the throat "small wooden spatulas, or *even the child's own pocket handkerchief*, may be used to depress the tongue"; or again, where in describing a surprise visit to his school, he calls up the vision of the doctor placing his benevolent hand on the once verminous, but now clean and close-cut hair of a little girl, and so ably commending her to her schoolfellows that they rush home and clamour for a crop! Truly a delightful picture; would it were as delightfully true.

A Manual of Operative Surgery. By Sir FREDERICK TREVES, Bart., and JONATHAN HUTCHINSON, F.R.C.S. Third Edition. Vol. I. Pp. xi, 775. London: Cassell & Company, Limited. 1909.—The third edition of this important work has been completely revised by Mr. Jonathan Hutchinson, who has found it necessary to make extensive changes and considerable additions in order to bring the book up to present-day standards. The first volume consists of two parts. Part I, dealing with general principles, contains numerous photographs of aseptic furniture and fittings at the London Hospital and illustrations of sterilisers and surgical instruments. Part II, dealing with abdominal operations, including operations upon the genito-urinary organs and the perineum, contains a number of excellent coloured anatomical plates. The description of the various operations is concise and clear, many obsolete operations being omitted. The accompanying illustrations are excellent. We note with pleasure that each volume has its own index—an improvement which we hoped for when reviewing the second edition of this work.

Massage in Recent Fractures. By Sir WILLIAM H. BENNETT, K.C.V.O., F.R.C.S. Fourth Edition. Pp. x, 134. London: Longmans, Green and Co. 1909.—The greater part of the book deals with the treatment of recent fractures, sprains and dislocations by means of massage and movements, the author advocating the treatment to begin in most cases as soon as possible after the injury. He emphasises the value of the hyperæmic, Bier's, treatment as an adjunct to massage in certain forms of stiff joints. The book is well worth reading by anyone interested in the rational treatment of injuries of joints.

Synoptic Chart of Cardiac Examination. Arranged by JOHN D. COMRIE, M.A., M.B. London: John Bale, Sons and Danielsson.—A very ingenious and informing toy, giving at a glance the principal physical signs of the ordinary cardiac disorders (thirteen in all) on the sliding card system. Thus, when "Aortic Incompetence" is shown in the headline, you may immediately find in the aortic area "diastolic murmur," at the apex "enlarged left heart," in the neck "pulsation of arteries," and at the wrist a pulse tracing typical of the disease. Quite complicated lesions are similarly illustrated. It would be very useful to hang in the student's study or on the walls of the house-physician's sitting-room.

Pye's Surgical Handicraft. Fifth Edition. Revised by W. H. CLAYTON-GREENE, B.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.) Pp. xvi, 592. Bristol: John Wright & Sons Ltd. 1909. —It is nearly ten years since the last edition of this valuable hand-book appeared. The present edition, (fifth), is of necessity a larger book; it is better printed and in better type, and alto-

gether more attractive than the last. Although largely rewritten, the general plan of the book has been mainly adhered to. The chief additions we notice are a chapter on massage, manipulation, and passive movements in the treatment of fractures; one on injuries of the spine, and chapters on the following special subjects: Eye, nose and throat, larynx and ear. There is a large addition to the number of illustrations. The general character of the work is so well known, and has been so often reviewed in the past, that it is unnecessary to refer to it. It is a most useful book to be in the hands of the student when commencing his surgical hospital practice, and should be value to those house-surgeons who have not had much practical experience during their student career. We see the flute-keyed stomach pump still pictured and its use explained. We think it would have been better omitted, and that those for whom the book is intended had better limit themselves to the much safer tube and funnel.

Differential Diagnosis of Bacteria. By E. P. MINETT, M.D., D.P.H. Pp. viii, 72. London: Baillière, Tindall & Cox. 1909.—This is quite a useful little hand-book for the student preparing for examination, or for the practitioner who does his own bacteriology. It gives, with simple working directions, the differential diagnosis of the ordinary bacteria, briefly setting out the cultural and staining reactions, and the effects of inoculation. About twenty lines are devoted to each organism. It appears to be reliable and useful.

Studies on Immunity. By ROBT. MUIR, M.A., M.D. Pp. xi, 216. London: Oxford Medical Publications. 1909.—It is by no means clear what purpose the publication of this book subserves. It is admittedly a collection of papers published separately in various journals and proceedings between the years 1903 and 1909. It is stated by the author that Paper No. 1 has been "largely rewritten and extended so as to make it more of the nature of an introduction to the subject." Had this excellent resolve been realised there would have been some excuse for the book, but unfortunately Paper No. 1 is by no means to be recommended as an introductory treatise to the subject of Immunity; while Papers Nos. 2 to 11 must be familiar to all workers in this particular branch. As a collection of valuable papers there can be no question as to its erudition, but as a volume on Immunity, where the field is open to the writer who will discourse on his subject with the simplicity of a master, it fails.

Parcimony in Nutrition. By Sir JAMES CRICHTON-BROWNE, M.D., F.R.S. Pp. vi, 111. London: Funk & Wagnall Company. 1909.—This essay is written as a criticism on the views, which the author believes to be erroneous, but which have received much

attention of late years in consequence of their advocacy by Professor Chittenden. It is maintained that the commonly accepted food standards are false, that the quantities of food stuffs are far larger than is needful, and that we have been partaking of double or treble the amount of proteid food which is necessary. The principles of " Fletcherism " and the " Chewing Song " of the Battle Creek Sanatorium are an outcome of this new doctrine. Sir James has set himself to combat these views: the one set called by Mr. Hubert Higgins " psomophagic," as opposed to the other, the low proteid-feeders, which are masticating and ruminating, or " poltophagic," and he has made a careful investigation of the question: " What is the proper daily proteid intake to meet the needs of the human body ? " He concludes as follows: The urgent question for us to-day is not how we may teach the poor to thrive on an attenuated fare, but " where shall we buy bread that these may eat ? " We should aim not at parcimony in nutrition, but try to " scatter plenty o'er a smiling land." We should prefer the word " parcimony " to be spelt with the usual " s."

Parents, Teachers and Schools. By J. ODERY SYMES, M.D. Clifton: J. Baker & Son.—These lectures on School Hygiene form a booklet of sixty-one pages, containing the views of one of our hospital physicians on questions which come into his work as physician to the Clifton College, and on which he speaks with some authority. His views are grounded on experience and common sense, and as such are well worthy of careful consideration from the parents and teachers for whom the book was written. His medical colleagues will, for the most part, entirely agree with his suggestions as regards diet and exercise, which will further the physical, mental and moral welfare of boys and girls at school, and tend to counteract the prevailing nurture of fads and the nervous diseases of civilised life.

Transactions of the American Pediatric Society. Vol. XX. Pp. viii, 238. New York: E. B. Treat & Co. 1908—1909.—This volume contains no less than seven papers by various writers on cerebro-spinal meningitis and cognate subjects. Flexner and Jobling publish an analysis of 400 cases treated with Flexner's serum (meningococcic), and report that their earlier favourable results have been extended by their larger experience. " The number of complications which arose was small, and the only persistent defect noted was deafness." This occurred in a few instances only. Dunn, with 40 consecutive cases treated by Flexner's serum, compares the results with those obtained by antidiphtheritic serum. Knox and Sladen report on 21 cases with a mortality of 14 per cent. They regard the serum as both antitoxic and bactericidal in action. Holt, in reporting on the cutaneous and ophthalmic test for tubercle, states that as a result of 1,000 observations he regards both as equally reliable, and

generally prefers the former. He gives a guarded but, on the whole, favourable verdict as to the value of these tests, and notes that they do not distinguish between a latent and active process. The majority of the speakers who discussed his paper, including Dr. Rotch, expressed similar views as to the value of these tests. The Presidential address by Dr. Kerley on "Public School Education," does not deal with what Englishmen would understand by the term. It is, however, a thoughtful and humourous essay, and in many ways quite applicable as a criticism of elementary education in this country. The following sentence is instructive and somewhat tragic: "A few years ago, when I was experiencing difficulty in getting workmen at $5 a day, a lawyer friend advertised in a daily paper for clerks . . . at a salary of $8 a week. Among those who applied were seventeen lawyers who had been admitted to the bar of New York State." Dr. Kerey's final advice to educationalists is peculiarly applicable to our own country: "That labour is the inevitable lot of the majority, and that the best education is that which makes labour the most productive."

Golden Rules of Dental Surgery. By C. W. GLASSINGTON, M.R.C.S., L.D.S. (Edin.) Third Edition. Pp. 72. Bristol: John Wright & Sons Ltd.—These rules will be found useful by students, but we think the following points need correction in the next edition. One cannot imagine a qualified dental surgeon using an elevator to remove an upper wisdom tooth (page 26). On page 32: Examination of the pharynx before treating superior protrusion is advised, but as the interior of the nose may be also, or only, at fault, the case ought to be sent to a rhinologist. On page 33: The rule as to extraction of the six-year-old molar requires qualification. On page 35: "To and fro" administration of N_2O should never be used. On page 67: The advice to medical practitioners, *re* the use of gargles and administration of calomel, is out of place in this booklet. On page 68: Much better advise the patient to see a dental surgeon, as the medical practitioner cannot be expected to diagnose dental cases.

Home Nursing, with Notes on the Preservation of Health. By ISABEL MACDONALD, A.R.San.I. London: Macmillan & Co. 1909.—This book of 326 pages is full of most valuable information to those who know it not. Although of Scotch origin, it is written in plain language, and is intended for those women and mothers who cannot always have a trained nurse in the home when sickness visits it. Chapters on home hygiene and on infant rearing add much to its value. The authoress has been accustomed to lecturing in nursing and hygiene, and has dedicated her book to the Lady Superintendent of Nurses at the Royal Infirmary of Edinburgh. We think that the chapter on cooking for invalids might well be studied by many fully trained nurses,

and that a future edition would be improved by the addition of an index.

New and Non-Official Remedies, 1909. Chicago: American Medical Association. 1909.—This booklet of 167 pages contains descriptions of the articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1st, 1909. Every endeavour is made to prevent admission to the "N.N.R." of any articles which are unscientific in composition as useless and inimical to the best interests of the public or of the medical profession. It is proposed to issue the book annually; a quarterly list of further substances is also to be issued as a supplement to the work. A full index of substances, and of manufacturers, gives additional value to the publication.

The Open-air Treatment of Pulmonary Tuberculosis. By F. W. BURTON-FANNING, M.D. Second Edition. Pp. xii, 184. London: Cassell and Company, Limited. 1909.—The second edition of Dr. Burton-Fanning's monograph on the open-air treatment of pulmonary tuberculosis contains little that was not in the first edition, but is none the less valuable on that account. The chief additions are found in the chapters on etiology, selection of cases and treatment of convalescents. The first is very good indeed, and contains, shortly and concisely, all the more recent additions to our knowledge, with the exception that no mention is made of the frequency with which tubercle bacilli may be detected in the blood. The views of the "inhalation" school (Cornet and Flügge) and of the "ingestion school," as represented by Calmette and von Behring, are clearly stated, and reference is made to the refutation of Koch's statement by the work of the Royal Commission. The remarks on the frequency with which the fever of tuberculosis is mistaken for influenza are very sound. Other new sections are the notes on Calmette's and Pirquet's tests, where the writer will find many to agree with his conclusion that neither is really to be relied upon. Allusion is made to the use of both X-rays and tuberculin as a means of diagnosis, but the author is of opinion that none of these adventitious aids is to be compared to a careful weighing of the facts of the patient's history, coupled with accurate observation of his condition, if possible extending over a period of several days, as a means of diagnosing phthisis early. The precautions stated to be necessary to obtain correct readings of the temperature when taken in the mouth make it a matter of regret that the author cannot see his way to recommend, unreservedly and only, the taking of temperatures in the rectum, a method which those who employ it find to be entirely free from objection. When we consider the extensive use which has been made of tuberculin as a curative agent, it is strange to find no mention whatever of it; but the writer does not stand alone if he considers that it does

not yet fulfil his postulate that " the open-air treatment simply makes use of all the various agents which are *proved* to exert a beneficial influence," etc. Some pages are devoted to a consideration of the work of Sir A. Wright and others on the opsonic index ; and the author is evidently a believer in the accuracy of the results obtained, as no mention is made of the many somewhat destructive practical criticisms that have from time to time been made of the methods of estimation, not to mention the deductions to be made from these. The above remarks apply almost solely to the additions in the new edition. The chapters on selection of cases and that on after-treatment are of outstanding merit, and they alone make the book worthy of a place in the library of every practitioner of medicine. Great stress is rightly laid upon the importance of giving up a long period of time to the treatment ; this is especially necessary in these days of statistics, when even those who ought to know most about it are inclined to discharge patients as " fit for work " far too soon. There are many extremely practical points in the book, as an instance of which may be quoted the paragraph on the care of the teeth before entering a sanatorium. The book is in every way excellent, and deserves to be widely read.

Infected Ears. By F. FAULDER WHITE, F.R.C.S. Pp. 100. London : Yellon & Mansfield. 1908.—The author emphasises the favourable experiences that he has had in the treatment of chronic purulent otitis media by means of the operation generally known as ossiculectomy, together with the means usually adopted for opening and draining the attic, an operation which he terms otectomy, to our minds introducing an unnecessary confusion in nomenclature, which serves no useful purpose.

E. Merck's Annual Report, 1908. Vol. XXII. 16 Jewry St., London, and Darmstadt. 1909.—We are again glad to welcome this report of recent advances in pharmaceutical chemistry and therapeutics. It is not a mere trade advertisement, but appears to be an outcome of an honest desire to provide a brief and impartial review of the therapeutic acquisitions of the last twelve months. The spirit of impartiality which it displays deserves all commendation, and to this is greatly due the fact that this Annual is so widely appreciated, and so generally finds a place on the consulting-room table as a work of reference when the latest developments of the pharmacist and the chemist are being sought for. It can be obtained free by any medical man who may apply for it. The subject of organo-therapy occupies over one hundred pages. It is to be regretted that so few of the substances described in the report have as yet proved themselves to possess any reliable utility ; many of them are greatly eulogised, but we think that the desire to discover some novelty is often more in evidence than any useful result which can be established, but with such results as have been obtained from the use of thyroid and

suprarenal preparations, it would be rash to limit the possibilities of organo-therapy in the future. The second portion of the book consists of some 250 pages on preparations and drugs, many of which are not in common use. The reader will find all the latest views and instructions as to the mode of administration and doses of such drugs as arsacetin, atoxyl, diaspirin, fibrolysin, novaspirin, sajodin, urotropin, and veronal; also an account of the curative sera and bacterio-therapeutic preparations, including the antithyroidin of Mœbius and the pneumococcic serum of Merck. The various indices which follow add much to the utility of the book as a work of reference, and a general index of diseases with indications for treatment may now and then supply a useful suggestion for clinical purposes.

Clinical Manual of Diseases of the Throat. By JAMES WALKER DOWNIE, M.B. Second edition. Pp. xviii, 432. Glasgow: James Maclehose & Sons. 1909.—The author has considerably enlarged on the first edition, and, in fact, he has practically re-written his work, though successfully keeping in view the object of producing a practical guide for the senior student and general practitioner, a purpose which has been admirably fulfilled. We are glad to find the author recommends the guillotine for tonsillectomy, but we think fuller and more detailed directions are desirable for enucleation. He omits all reference to compression of the bleeding base in troublesome hemorrhage, and we rather pity the practitioner who, when styptics have failed, has to depend on catching up the bleeding point with forceps and applying a ligature. Intubation is well described, but it is a mistake to advise the thread loop being cut if this can be avoided, since with the shorter period of retention of the tube, with the use of antitoxin, the thread can generally be retained for extracting the tube much more readily and safely than by the extractor. We are sorry to find no indications to guide the practitioner in his choice between a tracheotomy and intubation. But the manual is, speaking generally, complete, and very sound in its teaching; the coloured plates and black and white illustrations are very good and useful, and the printing excellent.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XXVII. Dublin: John Falconer. 1909.—The solemn dulness usual in volumes of Transactions is in this case relieved by an entertaining article on "Baths and Mineral Waters, and Some Fallacies connected therewith," by Dr. Walter G. Smith. He maintains that the answer to the therapeutic problem is not to be found in trivial details of the specific virtues of the different springs, but that "a Carlsbad cure is a very complex therapeutic agent. It is a rest cure, a diet cure, an air cure, a music cure, an exercise cure, a mind cure, and a body cure."

Editorial Notes.

University of Bristol Matriculation.

THE inaugural matriculation of a new University is perhaps of interest mainly to the acting staff and the students, who then initiate their University life. That this, the youngest University of the British Isles, has made a good start is shown by the 262 first matriculates, and the occasion was made impressive partly by the strong gathering of the professors and lecturers supporting the Vice-Chancellor, and by the goodly crowd of undergraduates.

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Christian Science and Faith Healing.

THE *British Medical Journal* (October 23rd), commenting on Mr. Stephen Paget's attack on the supporters of Christian Science and Spiritual Healing at the recent Church Congress, remarks that "it is on false miracles that Christian Science has founded and built her church. She does not publish her failures." Mr. Paget insisted that in London the Society of Emmanuel was under the shadow of Christian Science. It has published the case of a man who was healed instantaneously, "in the last stage, apparently, of consumption in the lower part of the body"—a disease as mythical as Mrs. Eddy's malignant tubercular diphtheria—and the case of a man who was healed by laying-on of hands and annointing, "after one lung had sloughed away, and the other had half gone," and he is now "in perfect health, with two good sound lungs." One or two of these reported miracles have been investigated, with the result which might be expected. "Nothing," Mr. Paget added, "had happened yet in spiritual healing which had not its counterpart in mesmerism, treatment by suggestion, or commonplace medical attendance." Naturally the official defenders of Christian Science are up in arms; but that is a proof that they are hard hit. Dr. Johnson thought one of his pamphlets had been a failure because he had not been sufficiently attacked about it. Judged by this test, Mr. Paget

has every reason to congratulate himself on the success of his plain speaking.

Mr. Stephen Paget further continued his attack in an article entitled "Where Christian Science Fails" (*Daily Mail*, October 15th, 1909), and also at the meeting of the Congregational Union at Sheffield, when he concluded his strong indictment of Mrs. Eddy and her ways as follows :—

"But her true strength, her ultimate secret, was neither in her sham philosophy nor in her devotions, but in her promise to heal all manner of diseases. She had healed and was healing many invalids. She helped them to forget or overcome those ailments which were called neurotic or neurasthenic. But she did not stop there. She loved to meddle with grave and urgent organic diseases, cancers, tumours, abscesses, hemorrhages, diphtheria, typhoid fever, acute inflammations, and destructive degenerations of the brain and spinal cord. Her advertised cures in such cases have been examined again and again, and have been found 'pitifully without foundation.' By patient inquiry amongst doctors and other friends, he had found the appalling and monstrous list of some of her victims.

"She has killed thousands—not by any mistake in diagnosis, for she never examines a case ; not by any mistake in treatment, for she does nothing that you can call treatment. Her feet are red with the blood of those whom she kills by sheer deliberate ignorance, by wilful blindness, by deliberate refusal to raise a finger for them. She puts them to death, and then, when they are dead, she says that they died of want of faith."

In a final impressive passage Mr. Paget said: "Her Christianity is all crown and no cross, all heaven and no earth, all comfort and no endurance, all pleasure and no pain. You turn to her works, and you find nothing in them that is really new, save the long trail of misery and preventable death. She tries in vain to hide it from our eyes. It proclaims her as 'one more wrong done to man, one more insult to God.'"

Dr. Horton's plea for toleration will receive little sympathy from the scientific and medical mind. Mr. Paget has done good service in the cause of scientific truth in opposition to the impostor and the quack, whether Christian or otherwise.

The Control of Quackery.

NOT only have the aberrations of the Eddy school been much in evidence of late, but also those of the Bodie school have been shown up in their audacious vagaries. The publication by the *British Medical Journal* of their booklet on *Secret Remedies, what they cost and what they contain*, has thrown a flood of light on the value of the advertisement columns of so many of our journals, many of which have declined to notice this book lest it might tend to the falling away of their revenue. We have no wish to depreciate the value of many proprietary compounds prepared with skill and care by competent pharmacists, and of which the composition is duly announced; these are very commonly in use by medical men, but the secret remedies have no rational existence, and should not be encouraged by our journals because of the revenue they bring to the promoter and the advertiser.

We have now received another book, just published by Baillière, Tindall & Cox, which is mostly a reprint from the *Medical Press and Circular*. It is entitled *Quacks, False Remedies and the Public Health*, by Dr. David Walsh, who for many years has had the evils of irregular medical practice and of patent medicines constantly under his notice, and who now pleads for the long-expected Royal Commission, for which the need is extreme, as it is hopeless to expect that the lay newspapers will inform the public of the evils of a traffic which spends huge sums in advertisements. Much could be done by calling into play the powers of existing legislation, and the General Medical Council has already shown its desire, so far as its funds will allow, to check the modes of the irregular practitioner. But whilst the Government continues to receive a few hundred thousand pounds annually from stamps attached to secret nostrums which have been proved to be fraudulent, and so gives these frauds a Government stamp as of acknowledged and recognised authority and utility, the medical journals may continue to preach in vain. We warmly commend Dr. Walsh's book to all who have power to act on this important question.

Health Committee, Bristol.

At the meeting on November 17th, on the election of Chairman, the following remarks from the speech of Mr. Henry Anstey are worthy of note: "The low death-rate of Bristol was most gratifying. Smallpox had visited them during the year, and there were fears of a serious epidemic, but the intrusion was successfully resisted. Diphtheria, scarlet fever and other complaints caused them continual thought and occasional anxiety, but serious epidemics had been prevented, and cholera and plague had been kept from the port and city. This agreeable state of affairs was not merely the result of good luck; it was due to the labours and the precautions of the Health Committee under the guidance of Dr. Colston Wintle, assisted by a medical officer, Dr. Davies, of whom the whole city had cause to be proud, and a loyal and capable staff."

The Chairman, Dr. Colston Wintle, made special reference to the outlook as regards the treatment of consumption. He said, in conclusion, that there was another important matter to which he wished to allude, and he left it till the last for that reason—it was how they should take care and deal with all those suffering from consumption in their midst, and there were one or two points which he would like to place before them in dealing with the subject. At present they took in at Winsley only the most suitable cases, and that meant that the people who were very far gone they did nothing for whatever. They were a preventive committee, and it was their policy to prevent disease, but the very people who spread the disease were the ones they could do nothing for. It was important that they should do something for them. They sent cases to Winsley when they were in the early stages of consumption, but it was in the later stages of the disease that it became most infectious. More than two-thirds of those who applied to them had to be sent away, because they had no accommodation for them. What they wanted was to get colonies to which they could send those who came out of Winsley and look after them; also colonies for those who could not be taken to that institution owing to the lack of room or suitable

condition. By this means only would that disease be at last stamped out. He spoke of the toll which the disease demanded every day, and said he was sure he would not appeal in vain to the members of that committee to grapple with this question, with the help of the Lord Mayor and citizens of Bristol.

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International Medical Congress, 1909. Budapest.

As the next meeting of the great International Medical Congress will be held four years hence in London, it behoves us in this country to gather any lessons we may learn from those who attended at Budapest; hence the following note from the Professor of Anatomy of our University will be of interest, and also of some utility to the Committee of Organisation in this country. He writes:—

"The more one thinks of the Congress, the more one appreciates the enormous difficulties in the matter of management which must have faced the Committee of Management, difficulties which must be obvious to everyone. The mere fact that some five to six thousand medical men, women, and the wives—even the children in some cases—had to be accommodated would be enough to strike with dismay any committee, more especially as almost every nationality was represented, and some in great numbers. With the exception of the first day, on which, from the railway station to the Central Institute, something like pandemonium prevailed, everything, so far as our own personal experiences are concerned, went without a hitch.

"The Hungarians are charming hosts, and spared no effort to make their guests enjoy themselves.

"The magnificent hospitality, lavish to extravagance, must have created a lasting impression on all, and it was a matter of regret that this country was so poorly represented. Whether this was due to the fact that so few English people ever trouble to speak any language but our own, or even if they do are ashamed to use it, we know not, but the fact remains that we were there in very sparse numbers, and from remarks dropped, our kindly and Anglophile hosts felt it. The condition of the International

room was a disgrace to our country. In one corner, the right-hand far corner, was a table devoted to Great Britain and Ireland. This table, apparently for the reception of current medical journals and lay newspapers, had on it a very poor portrait of His Majesty the King, a couple of out-of-date copies of the *Lancet* and *British Medical Journal*, and a few sheets of foolscap for the signatures of British congressists. That was its condition during the Congress. A glance at other tables showed them to be well stocked with medical literature and newspapers. It is to be hoped that this will be remedied in future congresses abroad.

"As we have before said, lavish hospitality was bestowed on all who cared to avail themselves of it; but, with their natural modesty, our hosts scarcely advertised the fact enough; for on going to what was modestly termed a reception, which in this country is usually interpreted as something which must be endured, with the aid of a little—sometimes very little—'stand-up' light refreshment, to which one may go at any time during the advertised hours, one found a really sumptuous dinner, which was not always easy to eat if one had already dined, as was the case until one realised what 'reception' really meant. At all these receptions it did one good to realise the good feeling which prevailed between the various members of Congress. In our own section, the anatomical, the utmost good feeling prevailed, and the arrangements were as nearly perfect as human imperfection can guarantee. The section had the advantages of not being overcrowded, and of being held in the luxurious Anatomical Institute of the University. Here were congregated such well-known exponents of the subject as Waldeyer, Apathy, Gaupp, Hammar, Laguesse, Maximow, Stieda, Sobotta, Osawa, Huntington, Lenhossék, Zellyesniczky, and many others, and the programme was sufficiently varied to interest all. The wonderful Institute in which the meeting was held makes one sigh when one turns to one's own country. Here are taught some five hundred students of anatomy, and although they are crying out for more 'subjects,' there is an annual supply of over one hundred and fifty.

"The city of Budapest well lends itself to such a Congress.

It is doubtful if there be any more beautiful city in the world. Its streets, wide as our 'Old Market,' with their rows of trees, their tramways—which run, by the way, near the footpath on each side, leaving a wide fairway to the middle—and the magnificent façades of houses by the side, unsullied by smoke, make striking pictures; and that majestic river, crossed by handsome bridges, five in all, which sweeps round flat Pest, separating it from hilly Buda, is a sight never to be forgotten, either when seen in the full blaze of sunlight, or by night with the full moon above, and the innumerable lights which illuminate not only its banks but its bridges below. To our mind the Congress was an unqualified success. Our hosts have set a high standard, which will be difficult even to reach when the Congress next meets, as it does, in London."

Notes on Preparations for the Sick.

Lactilloids.—FERRIS & Co., Bristol.—These tablets, from active cultures of the Bulgarian and other lactic acid bacilli, are prepared for use in accordance with the researches and views of Professor Metchnikoff. Curdled milk, and the various preparations of the bacilli which make it, are quite the most popular medication at the present time. It is beset with great expectations, and it is found that people who take it are none the worse, but often describe themselves as much better. The directions for use are :—

For direct administration.—One or two Lactilloids to be taken three times a day before meals in milk or water, sweetened with a little sugar, sugar of milk, or malt extract.

For the preparation of Curdled Milk.—Boil one pint of fresh milk for about fifteen minutes; allow it to cool to about 100° F., and add two or three Lactilloids. Keep at the same temperature for from eight to ten hours; the milk will then be ready for use. About five ounces of the curdled milk should be taken three times a day before food.

"Tyramine."—BURROUGHS, WELLCOME & Co., London.—"Tyramine" presents in a state of purity the organic base p-hydroxyphenylethylamine, which has recently been shown by researches at the "Wellcome" Physiological Research Laboratories to be the chief active principle of aqueous extract of ergot. Given hypodermically or by the mouth, it produces a marked

rise of blood-pressure, with greatly improved vigour of the heart's action. "Tyramine" may be administered in shock or collapse, and for producing contraction of the uterus post partum.

"Tabloid" Hypodermic "Tyramine," 0.005 gramme, is issued in tubes of twelve, ready for immediate use in emergency.

Formenthoids.—BUXTON & Co., Clifton.—These tablets are a pleasant combination of formaldehyde and menthol, with a suitable flavouring base. They should be sucked slowly for purposes of mouth and throat disinfection.

Thymoform.—OPPENHEIMER, SON & Co., London.—A combination in tablet form of thymol and formic aldehyde, with a cane sugar basis. They are very similar to the above-mentioned, and to the much advertised "Formamint" tablets.

Aldoform.—DUNCAN, FLOCKHART & Co., London.—Each of these tablets contains 1 per cent. of formaldehyde in combination with sugar of milk. Tablets such as these have been proved to be as effective in practice as they are in theory in tending towards oral asepsis.

Methylanodyne : Unguentum Analgesicum.—BURNETT AND TURNER, Clifton.—A readily absorbed preparation of methyl salicylate, menthol, oil of camphor, etc., with a lanoline base, dispensed in collapsible metal tubes to prevent the volatilisation of the more important ingredients.

The admixture of menthol with a considerable quantity of salicylate of methyl produces a most powerful analgesic for external use : its penetrative qualities and ready absorption by the skin recommend it, in conjunction with the internal use of the salicylates or other analgesics, in the treatment of acute or chronic rheumatism, gout, sciatica, pleurisy, and all neuralgic pains.

Ferro-Glidine, Luesan, Arsan.—MENLEY & JAMES, London.—We have previously commented on Glidine (p. 183), and its iodine and bromine combinations (p. 281). We have now to mention that similar compounds, with iron, mercury, and arsenic respectively, are now prepared in tablet form, and should be very efficient and useful preparations. The combination with an organic basis renders these drugs non-toxic, and the protein basis is itself of some value in the treatment of cases of tuberculosis and other diseases of malnutrition. The "Luesan" tablet contains 0.01 gramme of mercury in organic combination, and the "Arsan" contains 0.002 gramme of arsenic, likewise in combination with a vegetable protein food.

Fer Ascoli.—ALLEN & HANBURYS, London.—These tablets are essentially an organic compound of iron. They are described

as a compound of iron with nuclein. They have proved themselves of value, more particularly in cases of chlorosis and anæmic dyspepsia, when the mineral preparations of iron are said to disagree. They should be taken with meals, and are believed to remain insoluble until they come into contact with the alkaline secretions of the intestine. We are told that they contain 8 per cent. of iron, and it is believed that the ingestion of the nuclein with which the iron is combined has the effect of producing a marked phagocytosis, and so increases the tissue resistance to bacterial invasion.

Kephaldol.—Fr. Stohr & Co., London.—"Kephaldol" may be regarded as a mild, promptly acting antipyretic, antineuralgic and antihidrotic, that does not produce any undesirable and injurious by-effects on the various organs.

It is a yellowish-white powder (also put up in 7½ gr. tablets), with a somewhat bitter taste. It is but slightly soluble in water, ether and chloroform, comparatively readily so in alcohol. "Kephaldol" is a product of reaction, resulting through the action by citric acid and salicylic acid on various forms of phenetidine, at the end of which any free acid still present is fixed to quinine, or neutralised by sodium carbonate, respectively.

Various German authors have given glowing accounts of the satisfactory results obtained by this drug.

Antineurasthin.—The Antineurasthin Co., London.—The name of this drug does not commend it to us. The drug is accompanied by a little pamphlet, describing our nervous generation, the symptoms of nervous debility, and the modes and forms of neurasthenia. It then goes on to describe Dr. Hartmann's Brain and Nerve Food. We are not told what it is and how it is made, but it is described as a nutritive preparation characterised by its particularly high contents of Lecithine, and consequently highly adapted for use as a nerve food. Chemical examination yielded the following results :—

Water	4.75
Mineral Substances	2.33
Ether Extract	13.75
Nitrogen	3.17
Nitrogenous Substances	19.75
Carbo-hydrates and Non-nitrogenous Extractives	58.42
Lecithine	8.80

It is presumed to be adapted for all persons who are liable to mental stress and strain and to over-stimulation of the nerves, in particular for neurasthenics of every kind, and convalescents. As a rule, one tablet three times a day should suffice.

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the List in September.

November 30th, 1909.

George M. Gould, M.D. (1) .. .. 1 volume.
L. M. Griffiths .. .. 19 volumes.
R. Shingleton Smith, M.D. (2) .. .. .. 6 ,,

SEVENTY-FOURTH LIST OF BOOKS.

The titles of books mentioned in previous lists are not repeated.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund, or received through the *Journal*.

Allbutt and H. D. Rolleston, Sir C. (Eds.) *A System of Medicine.* Vol. VI 1909
Basu, B. D. .. .. *The Dietetic Treatment of Diabetes* 1909
Branson, H. Thursfield and W. P. S. *Medical Morbid Anatomy and Pathology* 1909
Burghard, F. F. (Ed.) *A System of Operative Surgery.* Vols. II, III 1909
Chemistry (Catechism Series) .. .. [N.D.]
Clarke, H. .. .. *Studies in Tuberculosis* .. .. [1909]
Clay, Rotha M. .. *The Mediæval Hospitals of England* .. .. [1909]
Deuteronomy Smith .. .. [N.D.]
Downie, J. W. .. *Diseases of the Throat* .. .. .. 2nd Ed. 1909
Glaister, J. .. .. *Arsenical Gas Poisoning* 1908
Gould, G. M. .. .. *Biographic Clinics* .. .. .. (1) Vol. VI 1909
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MEETINGS OF SOCIETIES.

Bristol Medico-Chirurgical Society.

Annual Meeting, October 13th, 1909.

After a vote of thanks to the retiring President, Dr. Michell Clarke, had been passed, Dr. James Swain took the chair and gave an introductory address (see p. 289). Later a cordial vote of thanks was given to Dr. Swain for his able and interesting address.

The Honorary Secretary and Editorial Secretary, Dr. J. A. Nixon, read the following annual report :—

There is a balance on hand on the general account of £81 14s. 8d. From members' subscriptions the receipts were £173 5s. Balance from previous year, £94 14s. 5d. Interest on deposit account, £3 0s. 2d. The expenses have amounted to £189 10s. 5d., of which the chief items are: Library Grant, £65; Rent, etc., £57 6s. Payment for members to *Journal*, £48 10s.

The balance of the *Journal* Account standing to the credit of the Society last October was paid to the Editorial Secretary to meet a deficit on the *Journal*, and there are no funds in this account at present.

During the year 1908–9 thirty new members joined the Society, twenty-two resigned, ten died. On October 1st, 1909, there were 166 members.

The meetings have been well attended, the average, excluding visitors, being forty-one.

The Hon. Librarian, Mr. C. K. Rudge, read the following report:—

The Library of the Bristol Medico-Chirurgical Society now contains, including duplicates, 11,098 volumes. 302 volumes have been added during the year, and 206 duplicate volumes have been sold. The Library is in regular receipt of 188 periodicals.

Under the new regulations permitting members to take out books other than duplicates 832 issues of books have been loaned to ninety borrowers during the year. This number includes thirty-six volumes borrowed from Lewis's Library. The total amount received in fines was 12s. from sixteen borrowers.

The Bristol Medical Library, to which members of the Society have access, now consists of 21,235 volumes, and it is in receipt of 251 current periodicals. These are contributed by the constituent libraries in the following manner:—

BOOKS.

Bristol Medico-Chirurgical Society ..	11,098
Faculty of Medicine, University ..	8,374
Bristol Royal Infirmary	1,189
Bristol General Hospital	574
	21,235

PERIODICALS.

Medico-Chirurgical Society	194
Faculty of Medicine	57
	251

During the year 382 volumes have been added to the Library.

The following are the officers for the Session 1909–10: President—James Swain, M.D., M.S.Lond. President-elect—B. M. H. Rogers, M.A., M.D.Oxon. Committee (*Ex officio*)—J. Michell Clarke, M.A., M.D.Cantab. (retiring President); R. Shingleton Smith, M.D.Lond. (Editor of *Journal*); C. K. Rudge, M.R.C.S. (Hon. Librarian); J. A. Nixon, B.A., M.B.Cantab.

(Editorial Secretary). (*Elected*)—J. P. Bush, C.M.G. (Ex-President); J. Taylor, M.R.C.S. (Ex-President); P. Watson Williams, M.D.Lond.; G. Parker, M.A., M.D.Cantab.; I. Walker Hall, M.D.Vict.; F. Lace, F.R.C.S.; J. Lacy Firth, M.D., M.S. Lond.; C. A. Morton, F.R.C.S. Hon. Secretary—J. A. Nixon, B.A., M.B.Cantab.

RECEIPT AND EXPENDITURE ACCOUNT OF THE BRISTOL MEDICO-CHIRURGICAL SOCIETY, SESSION 1908-9.

	£	s.	d.		£	s.	d.
Balance in hand Oct. 1, 1908	94	14	5	1908. Oct. 11.—Grant to Librarian	5	5	0
Balance in hand on Account of *Journal* ..	13	18	11	Oct. 11.—Stamps ..	1	0	0
Members' Subscriptions	173	5	0	Dec. 8.—Hall, etc., and Fitzgerald	0	15	9
Interest on Deposit Notes	3	0	2	,, 22—For Lantern ..	1	11	6
Excess on a Subscription for *Journal*	0	5	6	1909. Jan. 7.—Farr, Stamps, etc.	2	0	0
				April 20.—To *Journal* Account	0	5	6
				May 7.—Editorial Sec. (174 members, 1909)	43	10	0
				,, 7.—Editorial Sec. (20 members, 1908)	5	0	0
				June 23.—Porter ..	1	3	4
				,, 23.—Reporter ..	0	18	0
				Sept. 23.—Rent, Telephone, etc.	57	6	0
				,, 23.—Library Grant	65	0	0
				,, 10.—Printing ..	3	14	6
				,, 30.—Hon. Sec., Petty Cash	1	18	4
				1908. Dec. 30.—To *Journal* ..	13	18	11
				1909. July 14.—Cheque Book	0	2	6
				Oct.—Balance	81	14	8
	£283	4	0		£283	4	0

November 10th.

Dr. JAMES SWAIN, President, in the Chair.

Dr. CHARLES read notes on a case of **Kala Azar,** and on a case of **Myesthenia Gravis,** and showed the patients. Dr. MICHELL CLARKE referred to a case of Kala Azar. He had shown a specimen of the blood from the spleen of the patient to the Society.—Dr. RENDLE SHORT showed specimens of the organism obtained from a case of Oriental Sore, which organism was the same as that found in Kala Azar.

Dr. WALTER SWAYNE read a paper on **The Treatment of Retroversion of the Gravid Uterus.** The affection occurred

frequently, but in many cases the malposition became rectified spontaneously, though in others it was troublesome, and might be fatal. If recognised early the difficulties of treatment would be small. It was most troublesome in primiparæ. These patients might attribute the urinary symptoms to the normal state of pregnancy. In treatment the first thing was to evacuate the bladder, which opposed reposition of the uterus. He had seen one case in which the bladder was aspirated supra-pubically because the catheter previously used had been passed into a false passage. The urethra in these cases was stretched, and the catheter might have to be passed several inches to draw off the urine. If attempted reduction with the fingers in the vagina was unsuccessful, the cervix should be seized in vulsellum forceps, and the finger used in the rectum. Thirdly, the uterus might be evacuated, but this procedure was difficult owing to difficulty in dilating the cervix. The alternative was to reduce by laparotomy. This was suggested by Dr. John Williams, of Cardiff, twelve or thirteen years ago. The speaker gave details of three cases illustrating the modes of treatment. He considered that laparotomy was the best treatment if the bladder trouble was severe, and if adhesions were thought to be present. The latter were difficult to diagnose. Incision of the bladder to permit irrigation and escape of sloughs was sometimes indicated.—Dr. ARTHUR FELLS had met with several cases in which he had failed to replace the uterus with the fingers, the patient being in the left lateral position, but had succeeded by placing the patient in the knee-elbow position and making sustained pressure upon the uterus by means of a good sized sponge held in a sponge-holder.—Dr. R. C. LEONARD inquired as to the period of pregnancy of the speaker's cases.—Mr. D. C. RAYNER had performed laparotomy for a case in which he could not otherwise replace the uterus. The impaction had been due to the existence of a fibroid. He had to give up an attempt to enucleate the fibroid owing to the free bleeding, and had to perform hysterectomy instead.—The PRESIDENT asked if it would not be better to perform laparotomy as a routine, rather than attempt to evacuate the uterus.—Dr. SWAYNE, replying, said he considered laparotomy was not dangerous in pregnancy. It was doubtful if the bladder in some cases could be sufficiently well drained without incision. Reduction was impossible without separating adhesions, if such existed. He would prefer to proceed by laparotomy rather than by evacuating the uterus, if the cervix was high up in the later periods of the affection.

Dr. F. H. EDGEWORTH read notes of a case of **Recovery from Tuberculous Meningitis,** and showed the patient. The patient was a woman, 22 years of age, who was admitted to the Bristol Royal Infirmary on October 26th. For fourteen days previously she had had intense headache, preventing sleep. There was

marked tenderness over the head, slight fever, and double optic neuritis. No other abnormal physical signs were present. Spinal puncture evacuated a test-tubeful of clear fluid, without cells in it, and without micro-organisms. Steady improvement followed the puncture. He considered that the woman had meningitis. Vaccination of the arm with tuberculin gave a marked positive reaction.—Mr. HARSANT remarked that a recent writer in "Brain" had estimated that there were 1 per cent. of recoveries in tubercular meningitis.—Dr. B. M. H. ROGERS believed recovery was probably commoner than was thought. During last year two cases at the Bristol Children's Hospital had recovered.—Dr. WATERHOUSE asked if thrombosis of cerebral vessels could be excluded in the speaker's case. In adults, apart from phthisis, tubercular meningitis was very rare. He had seen a case recover under treatment with morphia. He asked if syphilis could be excluded.—Dr. J. A. NIXON also raised the question as to exclusion of syphilis. He had seen one case of headache, tenderness to percussion and optic neuritis, which proved to be syphilitic.—Dr. EDGEWORTH replied that there was no evidence of syphilis, and that the patient was not anæmic as in cases of thrombosis, and the optic neuritis of the patient was more intense than in that affection.

Dr. A. RENDLE SHORT read a paper on **Iodoform and Thyroidism.**[1] He showed that in one group of cases of iodoform poisoning the symptoms were the same as those of acute thyroidism, and gave details of a case in which the use of iodoform in the treatment of a carbuncle had been quickly followed by symptoms of exophthalmic goitre.—Dr. SHINGLETON SMITH alluded to the way in which iodoform had been administered continuously for months, in former years, in the treatment of tuberculosis. These cases did not develop the symptoms of thyroidism. He remembered one patient developing weakness in the lower limbs under the treatment.—Dr. CLAYTON remarked upon the interest of the paper. He had been taught that no drug produced fever, but here was one which apparently did so, but only secondarily, by stimulating the activity of the thyroid gland.—Dr. WATERHOUSE asked how boiling the water could prevent it causing goitre, if it caused goitre through its iodine content as suggested.

Dr. WATSON WILLIAMS read notes of a case of **Radical Osteo-Plastic Operation for Double Fronto-Ethmoidal Sinus Suppuration,** and showed the patient. The patient had had headache for ten years. Twelve months previously the antra and sphenoidal sinuses had been opened up; later the anterior ends of the middle turbinates had been removed, and the frontal sinuses then treated by irrigation, the ducts being unusually patent. The speaker described his operative technique. Both frontal

[1] We hope to publish the paper in our next issue.

sinuses had been dealt with at one operation. On the right side, following Killian's method, the roof of the orbit had been widely removed. The patient had lost her headache and other symptoms, while scarring was very slight indeed.—Dr. GREEN remarked that he had witnessed the operation, and had been struck with its extent and severity. The scarring was remarkably small.—The PRESIDENT would have thought it risky to expose the orbital tissues in the way described.—Dr. WILLIAMS replied that removing the roof of the orbit was not found to lead to complications. It was very important not to irrigate for several days after the operation.

J. LACY FIRTH.
J. A. NIXON, *Hon. Sec.*

Local Medical Notes.

BRISTOL.

University of Bristol.—FACULTY OF MEDICINE :—

EXAMINATION SUCCESSES.

UNIVERSITY OF LONDON.—In the M.B., B.S. Examination, J. W. J. Wilcox was successful in the Honour's Division, and obtained distinction in Medicine.

M.D. Examination.—The University Medal was awarded to Henry Devine for Mental Diseases, not as stated in our last issue for Diseases of Women.

CONJOINT EXAMINING BOARD OF ENGLAND.—*Materia Medica :* B. C. Eskell, H. R. B. Hull. *Anatomy and Physiology :* E. S. Abraham. *Medicine :* P. J. Martin,* F. C. Morgan.* *Surgery :* H. H. S. Templeton,* J. F. H. Morgan.* *Midwifery :* J. F. H. Morgan,* M. M. Lopez. *R.A.M.C. :* P. C. Field, M.R.C.S.

A students' reception was held on October 2nd, and was a decided success. The students were received by Lady Owen, Professor and Mrs. Lloyd Morgan, and Professor and Mrs. Michell Clarke. Music was provided by the University Musical Society.

An interesting exhibit of Antarctic objects was shown by Mr. R. E. Priestley, who was geologist to Sir Ernest Shackleton's expedition. Amongst the refreshments was tea which had been buried in the ice for about eight years, and was brought back by this expedition. Its taste had been little impaired by its long stay in the ice.

* Denotes qualification.

A generous donor to the University funds, Mr. Henry Overton Wills, has, we are pleased to note, received the Freedom of the City of Bristol, an honour held by few.

Bristol Medical Dinner.—The Annual Dinner, held on November 23rd, under the presidency of Dr. Herapath, was very successful, being attended by a large number of past as well as present students. The Vice-Chancellor of the University was the very popular guest of the evening.

Bristol General Hospital.—At the half-yearly meeting of the subscribers of this institution, the financial statement showed that the deficit amounted to £3,000. The medical report was satisfactory, and showed the great need of such an institution in the locality.

The following appointments have recently been made: *House Surgeon:* F. C. Morgan, M.R.C.S., L.R.C.P. *House Physician:* T. B. Dixon, M.R.C.S., L.R.C.P. *Assistant House Physician:* J. F. H. Morgan, M.R.C.S., L.R.C.P. *Casualty Officer:* D. Robertson, M.B., B.Ch.Edin.

APPOINTMENTS.

W. M. Bergin, M.B., B.S.Lond., has been appointed Assistant-Surgeon to the Royal Eye Hospital, Southwark.

P. S. Connellan, M.B., B.S., has been appointed House Surgeon to the Gordon Hospital, London.

Forbes Fraser, F.R.C.S.Eng., has been appointed an Honorary Surgeon to the Royal United Hospital, Bath.

Declining Birth Rate in Bristol.—It was stated at a recent meeting of the Health Committee that whereas in 1884 the birth-rate was 32.6, a year ago it was 24.2, and now it was as low as 23.

BERKELEY.

Jenner Tribute.—A visit was paid recently by Dr. Simon Shiwopiszew, Director of the Russian Lymph Institution at Orel, and Lecturer on Vaccination, and M. Edward Hoffmann, of Finland, to Berkeley, to place a wreath on Jenner's tomb in the chancel of the parish church. They were afterwards shown a collection of Jenner relics by a local collector, with which they expressed keen delight.

GLOUCESTER.

Royal Infirmary.—At a recent quarterly meeting of the governors, the chairman stated that the expenditure last year exceeded the income by £1,000. Unless they had increased support one of the wards would be closed, which would be a calamity to the city and county; but the increasing cost made it necessary for more generous donations to be made to carry on the work of the Infirmary successfully

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For the treatment of various forms of disease either by the direct introduction of Lactic Acid Bacilli, or the administration of curdled milk prepared therefrom.

LACTILLOIDS are Tablets prepared from active cultures of the Bulgarian and other Lactic Acid Bacilli, as described in the researches of Prof. Metchnikoff and Dr. Michel Cohendy.

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